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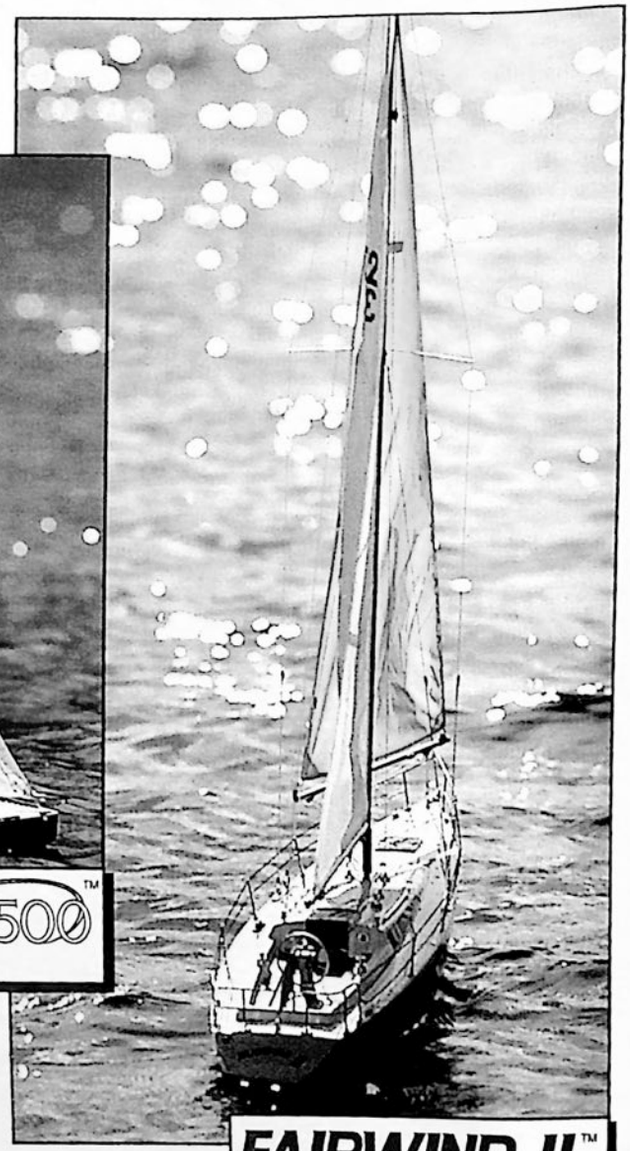

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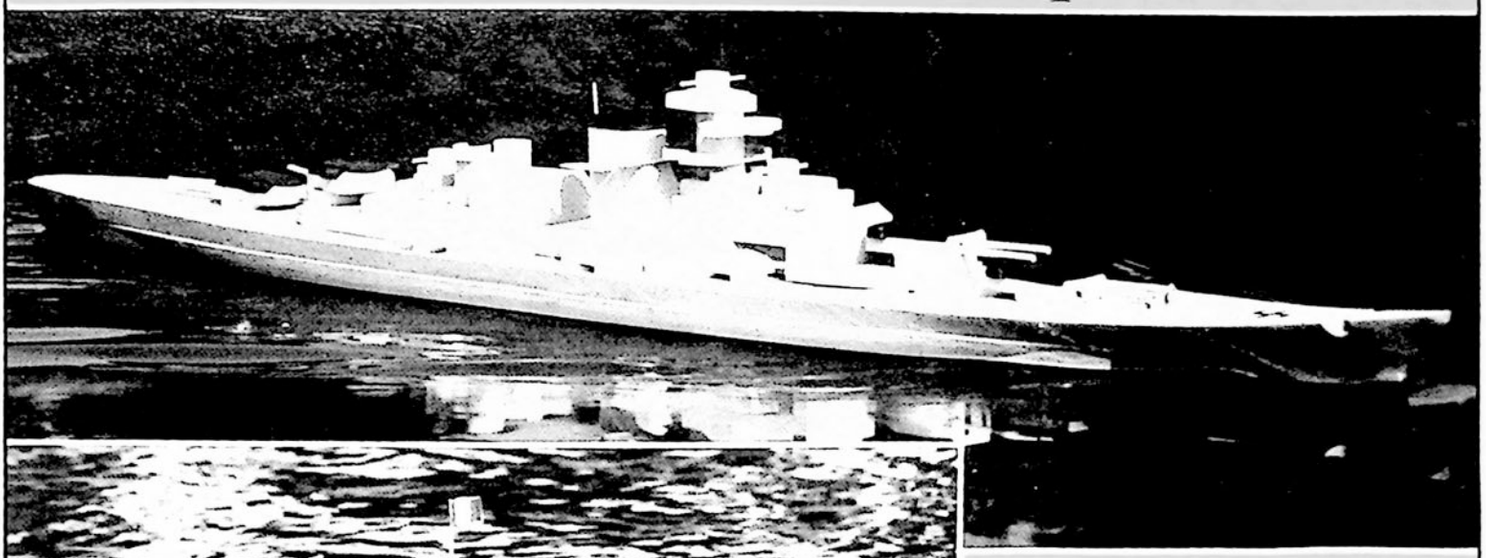
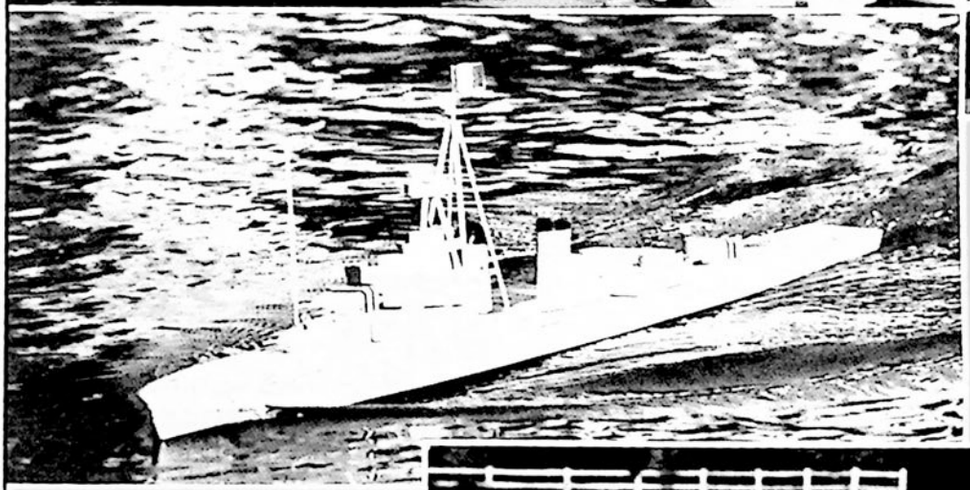
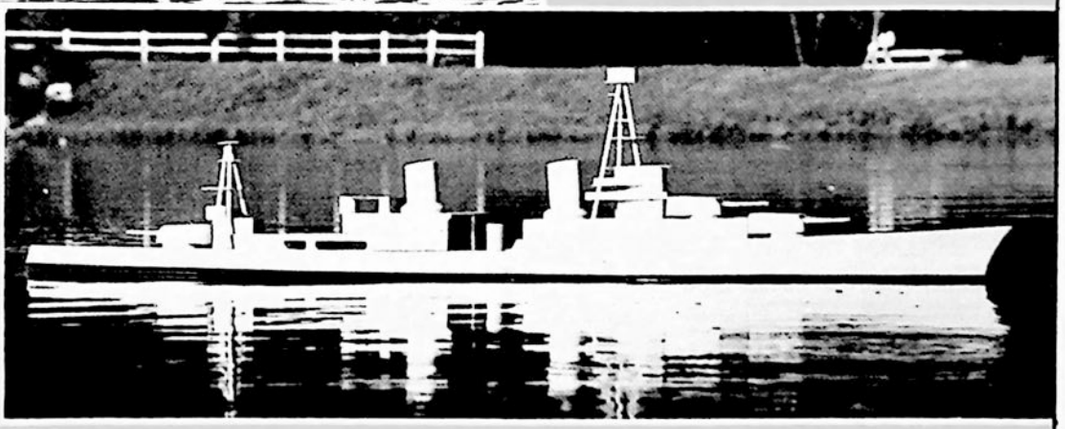
DISCOVER !! Kits and Accessories made just for R/C Model Warship Combat !!





Above, DKM BISMARCK,
German Battleship. Lgth. 68.7 in.
Beam 9.8 in. Displ. 40.0 lb.
Left, FS MARSEILLAISE,
French Light Cruiser. Lgth. 51.0 in.
Beam 4.8 in. Displ. 8.4 lb.
Below, USS HOUSTON,
American Heavy Cruiser. Lgth 51.0 in.
Beam 5.5 in. Displ. 9.6 lb.



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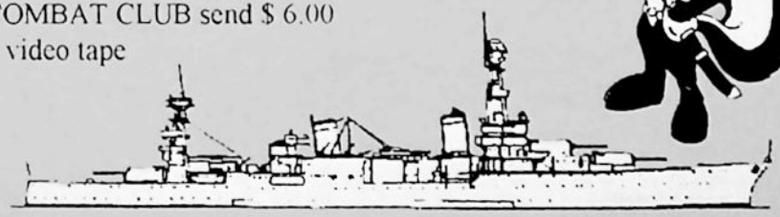

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W.H. Gebhart contributes this month's main cover shot of Prather's Deep Vee gas boat, the Aggressor, doing what it does best — rip through the water. For the full story on the boat and the people behind it, see the story beginning on page 6. Also featured on the cover is a snapshot of RC Warship Combat, this one taken from the 1993 International R/C Warship Combat Nationals by Steve Milholland. Steve begins a new column on this fast-growing segment of the hobby that starts on page 16. And for a look at the combat action from the 1994 Nationals, including a first-ever Strategic Victory, see page 32.

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U.S. BOAT & SHIP MODELER

SPRING 1995
VOLUME 8 / NUMBER 4 / ISSUE #32

CORPORATE OFFICE:
P.O. Box 2459
Capistrano Beach, CA 92624-0459
(714) 496-5411

PUBLISHER
Jack Lewis

ASSOCIATE PUBLISHER/ADVERTISING
Mark Thiffault

EDITOR
Cal Stewart

MANAGING EDITOR
Bill Rice

ART DIRECTOR
Bradley L. Wood

ADVERTISING DIRECTOR
Robert W. Arsenault

ACCOUNTING MANAGER
Jim Lenhart

ART STAFF
Jerry Bassett

OFFICE STAFF
Kay Bastnagel
Jim Lenhart
Brett Thiffault
Tamara Stenerson

CONTRIBUTING EDITORS
Rod Carr
Scottie Dayton
Jerry Dunlap
Phil Dyskow
W.H. Gebhart
Eloy Marez
Richard Young

ADVERTISING
Mark Thiffault
714/496-5411

U.S. BOAT & SHIP MODELER (ISSN 0899-496X) is published quarterly by Gallant Models, Inc., 34249 Camino Capistrano, Capistrano Beach, CA 92624-0459. Phone: (714) 496-5411. Subscriptions in U.S. $14.00 for one year, $25.00 for two years. Single copies $5.00. Outside U.S. (except APO, EPO, FPO): Canada $20.00 one year, $37.00 two years; other foreign, $19.00 one year, $34.00 two years. All payments must be in U.S. funds.

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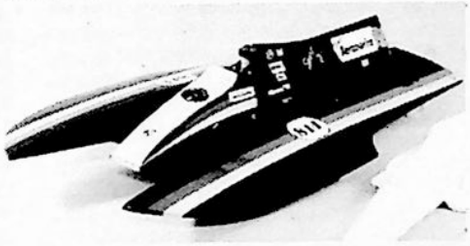

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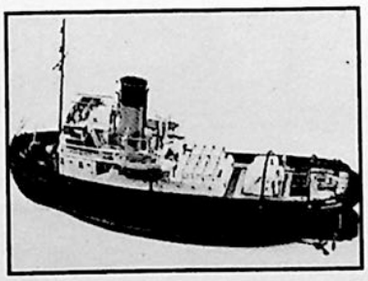

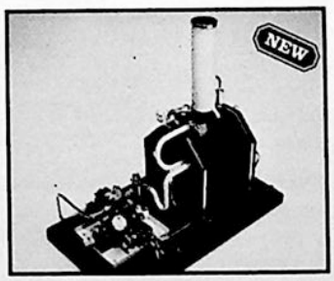

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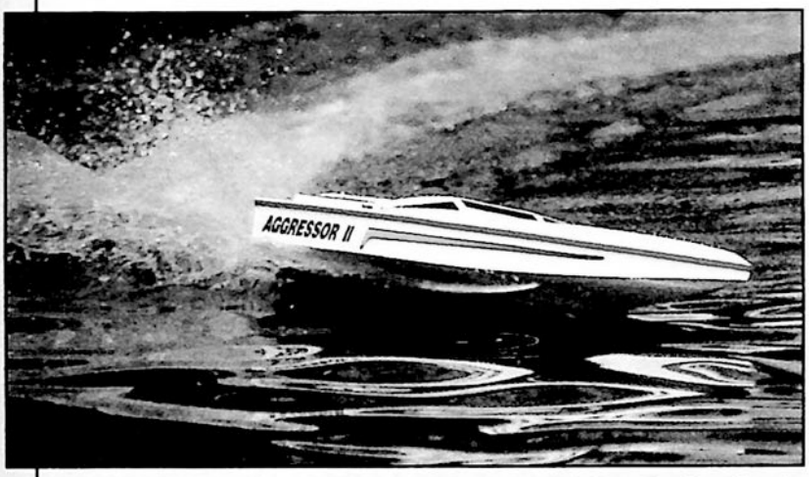
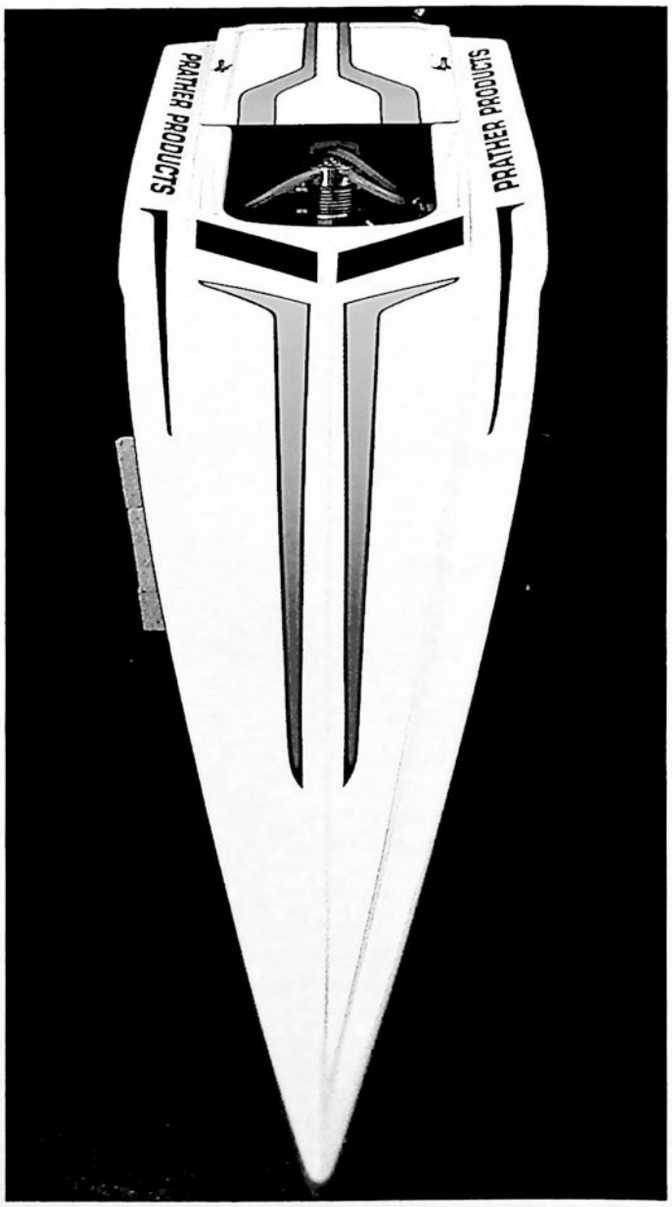
PRODUCT SURVEY

BY W.H. GEBHART

PRATHER AGGRESSOR

ARR PERFORMANCE DEEP VEE FOR 7.5CC INBOARDS IS HOT!





■ ABOVE: Up on a rail, hooking a turn, with the water deflected outboard by the strake. Ending the stake three quarters to the transom was a later development and aids the turning stability. ■ RIGHT: Sleek is the catchword for this stealth arrowhead. Notice the vertical freeboard in the bow. It de-tunes the lift for stability on the straight-away and more positive control in the turns.

WHEN WE last "visited" with the folks at Prather Products, it was to review what has since become a wildly successful product for them — their ready-to-run, gasoline-powered deep vee, the "Fun Cruiser" (see Spring '93 issue). As we discovered, this model represented something of a break from tradition for them, because Prather Products is better-known for producing nitro-powered RC competition racing boat kits. This time I'm reviewing their newest offering, the almost ready-to-run 7.5cc inboard-powered performance deep vee, "Aggressor II."

Since their product line contains a number of different boats in a series (specifically their tunnel hulls and hydros), I wondered if there a predecessor to the Aggressor II. "Not really," answered Terry Prather, president and chief creative force of the Wilmington, California, firm. "You may've noticed that the different model numbers relate to boat size. The clue in our literature is the recommended engine size — I=3.5cc, II=7.5cc, III=11cc. The Aggressor II was developed first because the 7.5cc is the most popular engine size."

Normally when Prather comes out with a new model, it's only after they've put the prototypes through a rigorous process of trial and refinement. "It's raced on the circuit and with the feedback from our drivers we fine-tune the hull," Terry adds. "This process usually takes over a year. If we set any records, then we know our job is done."

Incidentally, the Aggressor II has set a National Oval Lap Record AND a National Straight Line Record. I guess they did their job!

This boat could qualify as a case of "back to their roots" for the folks at Prather, but not entirely. There are a few things they learned from their "excursion" into producing a ready-to-run model.

"The Aggressor II is kind of an experiment for us," Terry Prather explains. "The level of completion at which it's of-

fered is somewhere between the pure kit form of the majority of our models and the ready-to-run condition of the Fun Cruiser.

"We found that we were missing a large part of the modeling community, those who wanted the satisfaction that comes from some assembly, but didn't want the involvement of a pure kit boat. As a matter of fact, we've found that more and more of the competition boaters want to get into the water quicker than they used to," he adds.

Aside from the daunting task of assembling and finishing (as in fill, fair and paint, not start-to-finish finishing) one of their record-setting outboard tunnels, hydros or other deep vees, some experience is necessary to operate these boats to their potential. I'm not saying that a novice couldn't achieve competence with a Prather model. But a novice is not the typical Prather boat buyer. That may be the way things were, but nothing stays the same.

You don't have to be a racer to be a serious boater. You can have some serious fun with a sport boat. Are these two categories exclusive of one another? Not necessarily.

"Most of the same things that make a good race boat make a good sport boat," Terry notes. "The Aggressor II is for sporters who want a boat that gives them great handling characteristics and it's for racers who want a boat that can win."

One of the nice things about an inboard deep vee is its stability, notes the builder. "It can be run in a variety of surface conditions that tunnels or hydros can't. And for the racers it's versatile. It can be run in Mono or Deep Vee competitively."

The gel-coat-in-the-mold finish technique pioneered with the Fun Cruiser is another carry through for the Aggressor II. The breakthrough occurred when Terry found someone to formulate a gel coat that matched the flexibility of epoxy-glass.

Now that this problem is solved, Terry forsees using gel coat for an in-the-mold finish for all of his future models. For anyone who's had to paint a bare hull, you know what a time- saver this is. Not only that, but the graphics are factory-applied and available in four fade patterns (yellow fades red, fluorescent pink fades

SPECIFICATIONS

HULL TYPE:	Performance Deep Vee
HULL MATERIAL:	White gel coated, epoxy-fiberglass

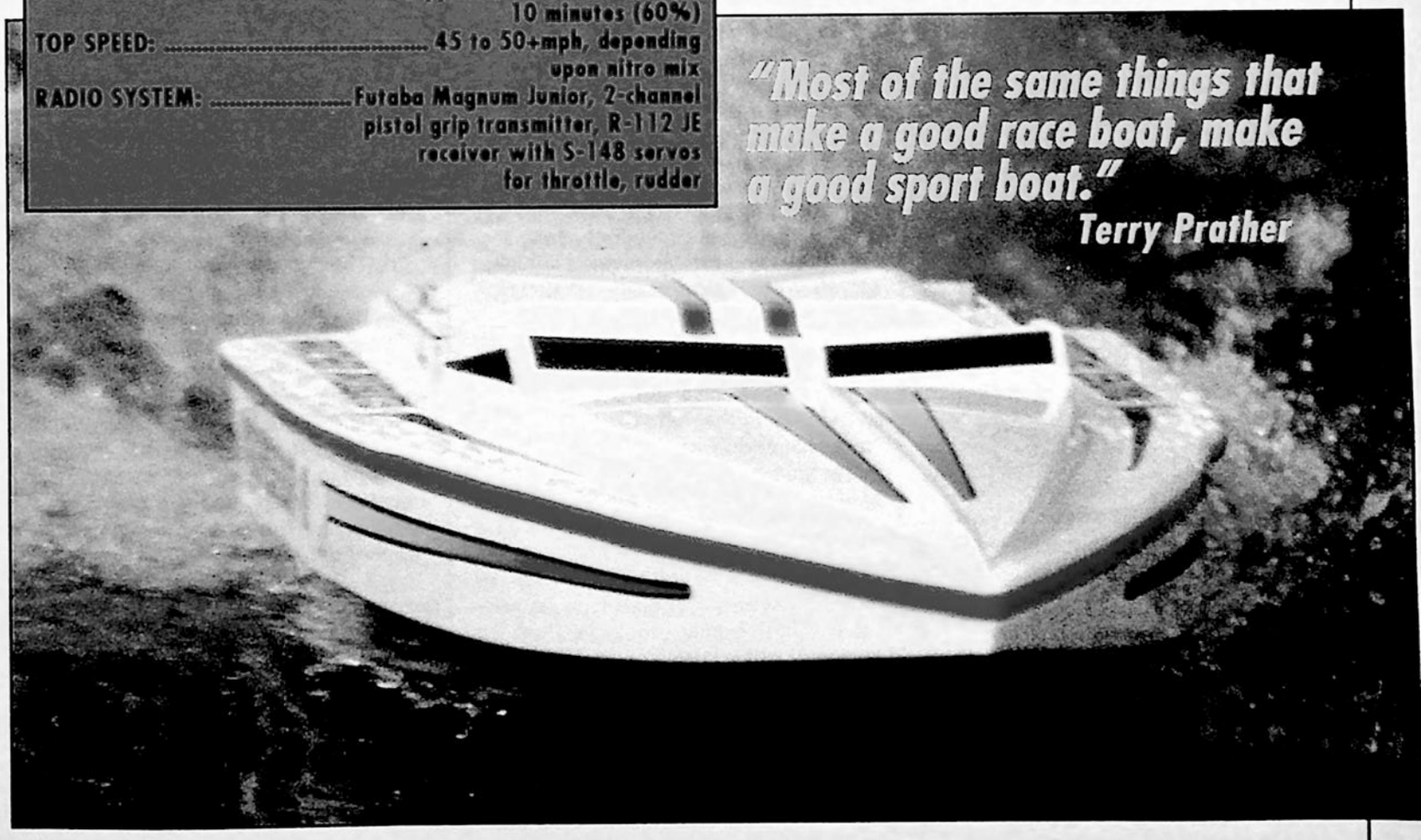
HULL DIMENSIONS

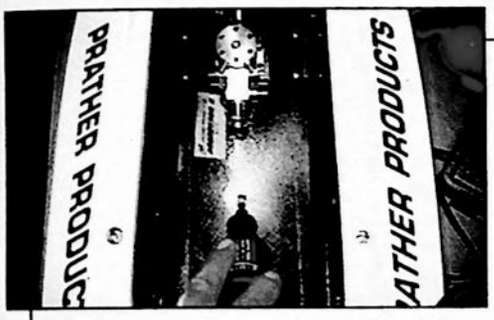
LENGTH OVER ALL:	45.5 in.
HULL LENGTH:	41 in.
BEAM:	12 in.
PROPULSION:	K&B Mfg 7.5 cc (.45 cu. in.) Inboard with Prather Products Exhaust Throttle

FUEL SPECS

TYPE:	Nitromethane - 15% (economical) to 60% (performance)
TANK CAPACITY:	12 oz.
RUN TIME:	(approx.)15 minutes (15%), 10 minutes (60%)
TOP SPEED:	45 to 50+mph, depending upon nitro mix
RADIO SYSTEM:	Futaba Magnum Junior, 2-channel pistol grip transmitter, R-112 JE receiver with S-148 servos for throttle, rudder

The Prather Products ARR performance deep vee Aggressor II, along with all the items necessary to complete. Accessory Kit, Running Hardware Kit and a few other necessary items. ■ BELOW: The Aggressor II comin' at you. So that's how it got its name.

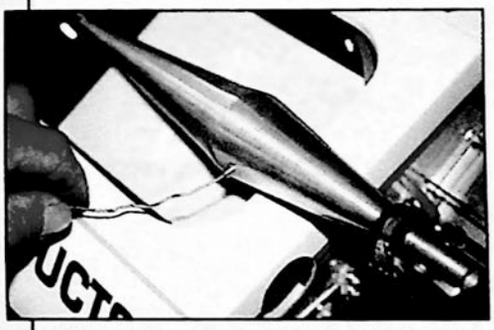




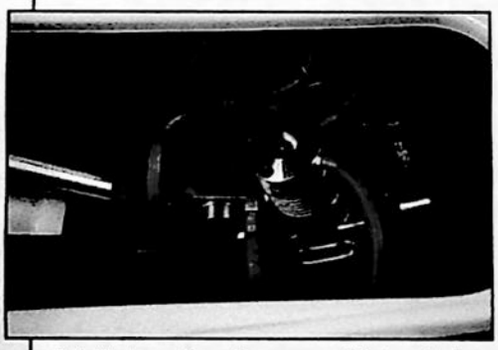
Engine installed on mount, and rails. Where would we be without the handy Dremel tool?

Brass tubes insert into each other to help locate hole and hold shaft log in proper alignment while bonding in place. Mark indicates individual tubes. Only the actual shaft log and stuffing box will remain.

Epoxy fillet laid in with epoxy saturated fiberglass cloth tape covering to ensure watertight integrity.



A little trick used when inserting the fuel tank pressure tap. Stick a piece of solder through hole (drilled 1/2 inch behind widest point) out the back of the tube. slip brass fitting on end and pull back through the hole and thread on nut.



Detail view of engine room with tuned pipe, plumbing hoses (water and fuel) and starter belt secured out of way.

Ready to roar with electric engine starter engaged to starter belt and glow igniter in position.

purple, fluorescent green fades yellow, light blue fades dark blue).

As for the quality of the epoxy-glass work, what I said about the Fun Cruiser holds true for the Aggressor II: "...constructed of hand-laminated epoxy fiberglass, in three layers. The hull and deck are factory joined while the parts are still in the molds, a step that insures a perfect fit and eliminates any chance of warping. I've been in the fiberglass fabrication business for most of my life, and I can honestly say that this is some of the best work I've seen."

A few more of the features that take this model into the ARR realm include: motor mount rails bonded in place and drilled to match the Prather mount; radio box installed, plywood servo tray inside, with cut-outs for the servos; tank plate installed, with mounting hooks; hatch cover with push button fasteners; transom predrilled for Prather Performance Hardware; flotation included, closed-cell polyethylene tubing; and water outlet installed.

I've described the construction technique of the Aggressor II, but not the details of the deck and hull design. We already know its dimensions and that it's a deep vee, but you haven't seen anything like this. With a low-profile deck, swept venturi and wedge outline, this little beauty redefines the term sleek. Stealth may be a better one-word description of it.

A spray rail aft combined with the hatch cover serve to keep spray out of the engine room. A unique design characteristic of the hull is the vertical freeboard that carries through to the bow. This was done to moderate the lift in the bow section that would be experienced at higher speeds with a more-traditional flare forward design. Combined with the vee bottom, this helps the boat cut through rough water.

There are two sharply defined strakes in the bottom that help the boat stay on track that end three quarters of the way to the transom. They used to extend to the transom, but it was found that ending them sooner improved the Aggressor II's turning stability.

The hatch cover hold-down latches are a slick feature — aircraft-type, spring-loaded, push-button cam locks. Push the button, it locks. Push it again, it unlocks. There's no need to keep a screwdriver handy to remove this cover.

Predrilling the transom for the extensive running hardware is a real time-saving boon and it relieves you of the inevitable error portion of trial-and-error component placement.

I highly recommend purchasing the Prather Accessory Kit for the Aggressor II. Besides being the best quality components available, the running hardware fits the predrilled transom. This kit includes the running hardware package just mentioned (stainless steel strut, aluminum wedge rudder, stainless steel racing fin, strut brackets, rudder brackets, brass shaft log, brass stuffing box, 3/16" flex cable with stub shaft, drive dog, stainless steel trim plates, Teflon thrust washer and all required stainless steel bolts, nuts and washers), *and* aluminum motor mount, stainless steel prop, boat stand, fuel tank, tuned pipe transom bracket, starting belt, fuel line, water line, radio box seals with push rods, radio box tape switch mount and fiberglass tape. Wow!

You will need to supply a 7.5cc inboard marine engine, and a 2-channel radio system.

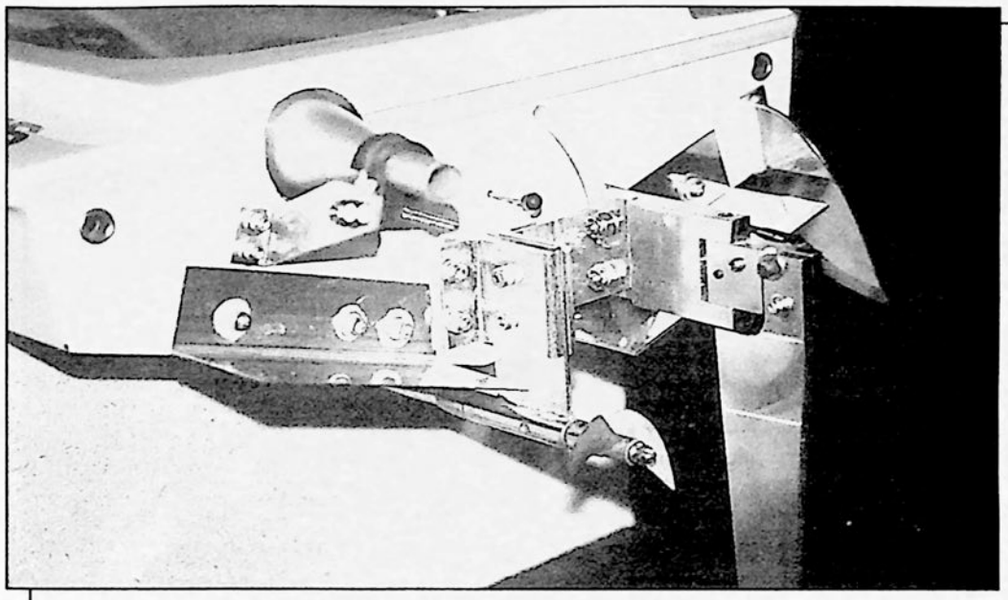
The engine was supplied for this review by K&B Mfg., Inc. *(Dept. USB, 2100 College Drive, Lake havasu City, AZ 86403).* They've just celebrated their 50th anniversary, in business since 1944! Owner John Brodbeck filled me in on some particulars.

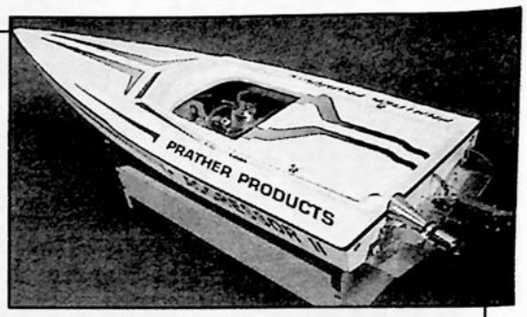
"We first came out with marine engines back in the mid-Fifties with the old Fury line, inboards and outboards," he said. They've since come out with their current line of engines, consisting of a selection of four outboards and five inboards.

"The 7.5cc is a relatively new version of that engine," he adds. It's been out for about 1-1/2 years. What makes this different is the drum rotor intake porting. It's superior to reed, disc, or front intake because fuel enters the back of the engine and doesn't have to go as far before it reaches the intake ports."

Specifications

Displacement	452 cu. in (7.41 cc)
R.P.M.	2,000 - 25,000
Power Output	2.2 H.P. @ 25,000
Weight	14.7 oz. (417g)





■ LEFT: Detail view of the business end
■ ABOVE: Sleek is catchword here.

The engine is of ABC construction: aluminum, brass and chromium. The piston (as well as the cylinder and motor casing) is constructed of aluminum for its light weight and good heat transfer properties. The sleeve is chrome- hardened brass, for durability. Hardened steel is used for the high-temperature/high-friction components that are flying around inside that little case up to 25,000 RPM (that's 417 per second!).

All of K&B's engines are highly proclaimed and each has powered numerous boats to record performances. Their high-quality finish only hints at the potential within. As their advertisements proclaim, they "...excel in performance, durability, power and speed, helping K&B to maintain their leadership year after year."

As to the carburetor type, K&B no longer supplies them with this engine. "We generally found that people east of the Rockies like an exhaust throttle and people in the West like carburetors. We just couldn't please everybody, but we still do offer a carb for those who want one, John Broberg explains.

In the literature that accompanies this engine, they mention that it's set up to take an exhaust throttle such as the Prather Products Exhaust Throttle. How's that for acknowledgment and cooperation!

The K&B 7.5cc is an especially high-performance engine designed for competition boating. Considering the performance record of the Aggressor II, it's an appropriate choice, whether your intentions are for racing or sport boating.

When it comes to the radio system, there can be no other choice for me but Futaba; that's how happy I am with their equipment. In all my model reviews, it's Futaba that I use. I've previously employed all the accolades that the English language provides, but the bottom line is that the diversity of their product line has fulfilled all my widely varied requirements completely, and their quality and value have stood the test of time. For me they are the standard by which all others are measured.

For the Aggressor II, the Futaba Magnum Jr. transmitter was my choice. The specialized requirements demanded by the Aggressor II are easily fulfilled by the Magnum Jr.

One of the characteristics of an exhaust throttle is that it needs to close completely at idle. Even 1/1000th-inch opening will cause it to idle high. This is the only legitimate complaint to be made about exhaust throttles, but the superior mid- to high-range performance over a carburetor throttle control overshadows that idiosyncrasy. You just need to ensure that the exhaust throttle closes down completely at idle.

This is where the features of the Futaba Magnum Jr. come in. With rotary-knob adjustable throttle volume trimmers (low and high) and rotary-knob zero set throttle trimmer, there's an infinite range of settings available to the throttle servo. As such, you can be sure to find the adjustment that fits the requirements. There also is a mechanical setting that takes out the reverse stroke (used with electrics) for the maximum throttle throw.

The long-range (1/5-mile), use-proven R-112 JE receiver and high-torque (42 oz. in.) S-148 servos complete the radio system.

Since time and space do not permit a rehash of the entire assembly procedure, I'll leave you to your own devises when you build yours, with just a few comments.

The assembly manual provided with the Aggressor is very detailed, thorough and complete with accompanying black and white photos. It would be a benefit to novices to include some simple drawings highlighting the stuffing box/shaft log through-the-hull and into-the-strut-and-ferrule installation procedure, and another showing the prop nut, prop, drive dog, thrust washer sequence on the flex cable into the cable collet arrangement.

With Terry Prather's encouragement, following are a few construction details I found that did not agree with or that were lacking in the assembly manual.

1) The scribe in the bottom denoting the location of the shaft log is merely an approximation (as is pointed out in the literature). Don't just go and blow a hole there. Install the motor with the guide tube first and then cut the hole. On the review model, the hole ended up 3/4-inch forward of the scribe mark.

2) The port trim plate mounted slightly below the imaginary line extending from the bottom. It's very important that the trim plate is exactly flush with the bottom. I elongated the holes in the plate with a file and remounted it properly. While on the subject of mounting the running gear, any time I see a hole, I like to see caulk in it (besides the fastening, of course).

3) To achieve full throw on the exhaust throttle, I had to drill a hole closer to the pivot point on the control arm. What's this? A practical use for geometry?

4) The tuned pipe cutoff measurement should be taken from the Aggressor II literature because it contradicts the suggested cutoff measurement on the Prather Products Tuned Pipe literature. Rather than taking measurements from the glow plug, it has become customary to measure from the exhaust flange to the widest point of the tuned pipe. For this application, the measurement should be 9- 1/2 inches. Measure twice, cut once. I angled the cut to match the angle at which the pipe needs to exit the exhaust port to clear the radio box.

5) In order to prevent the shaft log from vibrating loose from the strut ferrule, you are instructed to place a spot of solder at its intersection with the stuffing box. Rather than suffering that chore (I became concerned when the heat buildup softened my epoxy fillet) it's okay to secure it

continued on page 42

BY W.H. GEBHART

PRATHER:

A SON & DAD KIND OF BUSINESS

TERRY PRATHER

I visited Prather Products while writing the accompanying review of their deep vee Aggressor II. I erroneously assumed that Al, the senior Prather, founded the company.

But it was in fact his son, Terry, who started the business back in 1971.

"A father always thinks of having a business and bringing his son into it, but this time it didn't happen that way," recalls Al Prather. "I watched Terry start the business and a few years later realized he had something going. I decided to join him."

Prather Products actually started as a hobby for Terry, selling accessories for model airplanes, and it developed into a business. A big step in growing the business was to expand his product line and that was done by manufacturing epoxy fiberglass airplanes. A few of them are still buzzing the factory in mock flight, hanging from the ceiling of the upstairs assembly area.

In 1979, using some of the production techniques learned from building airplanes, Prather entered the RC high-performance model boat field. Terry introduced the first Prather deep vee with a joined hull and deck. Other models followed.

"During this era, there were few off-the-shelf accessories available to build and run this type of boat," Terry explained. "We saw the potential and invested a lot of time and money developing products that are of the quality required to stand up to the rigors of competition."

A whole segment of the business became devoted to building the accessories and running hardware for each new model as it came on the market.

The first Prather outboard tunnel was developed in 1980 and was specifically designed for the K&B 3.5cc outboard. As K&B developed new outboard engines (7.5cc and 11cc), new tunnels also were developed. Until recently, K&B was the only company that manufactured outboard engines for model boats.

Other hull shapes were not neglected during this period of growth. More offshore-style deep vees were added to the product line and hydros were offered for the first time.

Currently there are 4 outboard tunnel models, 7 deep vees and 2 hydros. When I visited the factory, I was introduced to their newest model that's about to hit the hobby shops, a ready-to-run, gasoline-powered cabin cruiser. And hot on its heels is another industry first, a scale gasoline-powered jet ski!

Besides building a reputation for producing the finest performance boat kits, Prather Products is known for their high-quality accessories. In a version of one-stop shopping, short of offering radio systems and engines, everything needed to outfit one of their models can be aquired from Prather Products except the Prather 25cc Homelite Special "weedwhacker" engine. In all, there are nearly 200 products listed in their (revised March 1994) catalog.

Terry and Al emphasize that Prather Products is not a mail order business. From the very beginning, sales have been through hobby distributors. They are enthusiastic supporters of the nationwide distributor-hobby shop system.

In 1987, Prather Products began offering stainless steel propellers for model boats. Developing this industrial process was an awsome challenge. Besides the huge start-up costs involved, prop design is an art form as much as a science. A lot of trial and error is involved beyond the theoretical stage for each size, and Prather offers 28 sizes!

After a final design is selected, a very

expensive aluminum tool is built. Wax is injected into this bolt-together cube of aluminum, the center of which is a void in the shape of the prop. After proper cooling (no pun intended), the aluminum cube is disassembled the wax prop removed and inspected.

The investment casting process (or lost wax method) is utilized in making the final product. A duplicate version in wax is made for each prop, which is then attached to a "tree". Encased in foundry sand, molten stainless steel alloy is pored into the tree, displacing the wax. As you can imagine, at those temperatures the wax gets lost!

The quality of the final product in a process like this is dependant upon the precision of the original wax mold. Every prop is checked and the mold flashing cleaned off. The slightest flaw causes rejection.

When I first drove up to the Prather Products factory, tucked away in a neat and clean, light industrial section near downtown Long Beach, California, I wondered how they were doing here. As a small business owner and a former chief engineer of a yacht manufacturer that was driven out of business by the well-documented, unfriendly-to-business climate here in California, I am acutely aware of the difficulties involved with staying in business. It was a question I put to Terry.

"Not too bad now," he answered. "We were seriously contemplating moving the facility to Arizona. What with all the regulatory hurdles — Air Quality Management District, Occupational Health & Safety Act, the worker's compensation insurance costs rising, health insurance, taxes on business income — they were making it real difficult to run a business here. Heck, cost of living and facility expenses weren't even an issue.

"Then all of a sudden, things seemed to lighten up," Terry continues. "Since we're building more boats with gel coat in the mold, we decided to put in a spray booth. *(Note: A spray booth is a clean room of sorts that draws atomized particles out of the air, filtering out solid ones before venting the volatile material.)* Previously, we had to hand-paint the gel coat into the mold. This was time-consuming, but we dreaded going through the permit process in order to convert. We decided to go ahead with the application because we'd heard it took about one year. To our great surprise, in about two weeks, we received approval on our application!

"Reading between the lines of the approval stamps all over the application, it seems that someone virtually hand carried our paperwork through the various agencies from which we needed approval. It seems the pendulum is swinging the other way. We're here to stay." •

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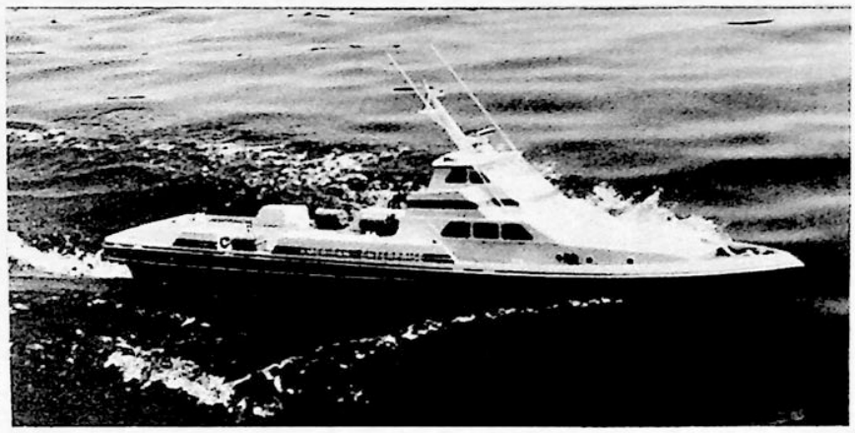

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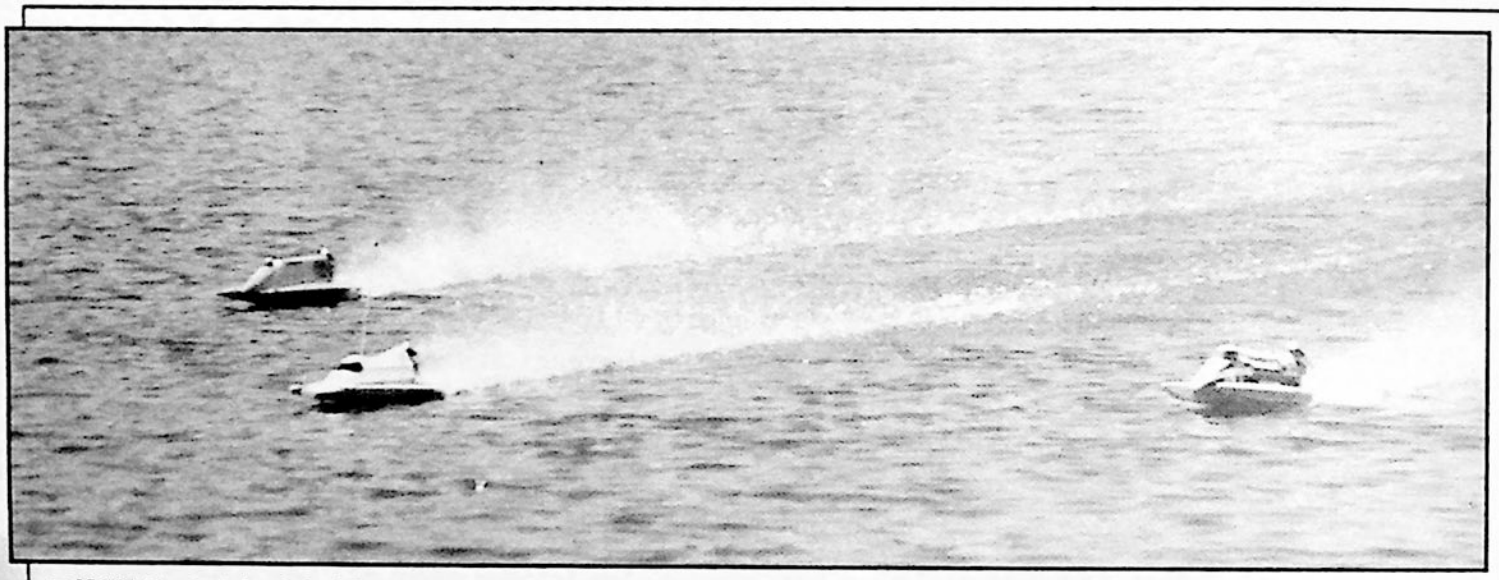
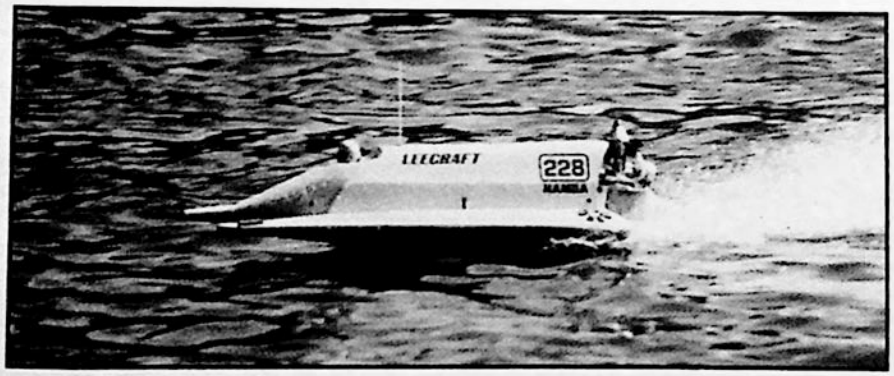
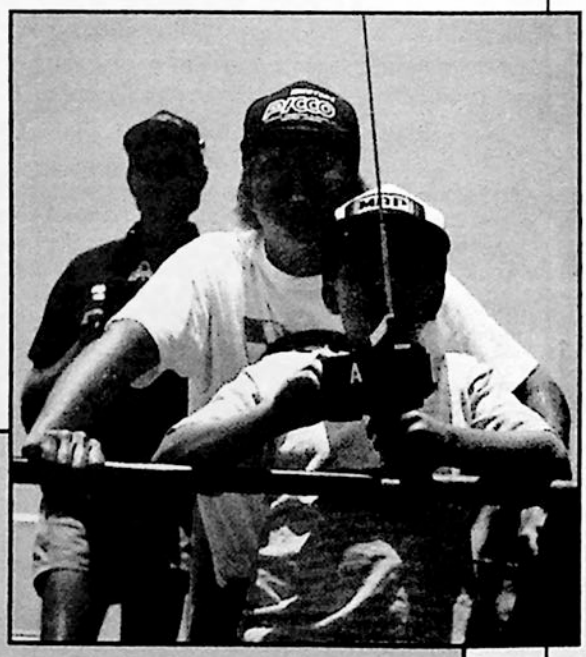
1994 NAMBA NATIONALS

BY JERRY DUNLAP



■ ABOVE: The start of an A Stock Tunnel race. ■ BELOW LEFT: Judy Hazlewood drove her LeeCraft 21 to a win in A Stock Tunnel. Husband, Richard, tied for first, but lost because Judy had a faster heat time. ■ BELOW RIGHT: Chris Grim, driving, took second place in Kids Class. Father Rick assisted.





SAN DIEGO'S LOVELY WEATHER AND PERFECT RACING CONDITIONS COMBINE FOR A MEMORABLE EVENT

■ RIGHT:Buzz Bussell, San Diego, displays the "Keep the Feet Dry" launching method.
■ BELOW: Alan Hobbs and Cathie Galbraith are NAMBA workhorses.

THE SAN DIEGO Argonauts served as the host club for the 1994 North American Model Boat Association (NAMBA) Nationals held July 16-23 at the Mission Bay Model Yacht Club Pond. When it comes to a location to challenge for national championships, the Model Yacht Pond provides a beautiful setting. Located in San Diego's popular Mission Bay Park complex just a mile from Sea World, the Model Yacht Club Pond was constructed strictly for model boat use by the City of San Diego. Surrounded by grass and shade trees, the model boat pond's somewhat tight confines presents would-be national champions with the challenge of negotiating 35' dia. turns at top speed. It definitely makes for exciting racing.

Besides the narrow race course, the saltwater filling the model boat pond provides other interesting issues related specifically to cleaning boats, running hardware and engines. After a day of racing in saltwater, a thorough cleansing of anything and everything exposed to the briny water is mandatory. In some ways, this special attention to cleaning is beneficial because it forces you into a maintenance program that insures you are taking proper care of your equipment after a day of competition.

The San Diego Argonauts, with a combined power and sail membership of over 100, was formed in 1959. It has the honor of being the first model boat club formed on the West Coast dedicated solely to radio-controlled model boats. The San Diego Argonauts hosted the 1969 International Model Power Boat Association (IMPBA) at the Santee water retention ponds.I remember that event because it was the first time I met NAMBA's first president, Gary Johnson, and the "Hawaii Horde." Through the years, Gary and I have enjoyed racing against each other for "bragging rights."

At the 1994 event, we raced each other 3 times in C Stock (11cc) Tunnel. I lost the first heat when my engine quit. However, I managed to keep the engine alive the two other heats and eked out a couple of close wins.

The Argonauts then hosted the third NAMBA Nationals, held in 1974, and later the 1987 NAMBA Nationals. Just to show you how committed this group is to model boating, Cathie Galbraith, NAMBA's executive secretary and member of the Argonauts, said they are preparing to host the NAMBA Nationals in the year 2000. That's what I call planning ahead!

Having planned, conducted and attended a considerable number of national model boating events, I consider myself a fairly astute judge of such endeavors. Without hesitation, I can state the 1994 NAMBA Nationals was the best national event I've ever attended. I'm making this statement based on the myriad of components that comprise a truly great national event, including facilities, race management, racing, program, trophies,

raffle prizes, souvenirs, T-shirts, pins, patches, social activities, food and consessions. The San Diego Argonauts are to be congratulated for the outstanding job they did in organizing and conducting the 1994 NAMBA Nationals.

The event drew over 600 model boats with participants coming from as far away as Australia. As might be expected, a majority of the racers were from Southern California and the Southwest. However, NAMBA members from states such as Pennsylvania, New York, New Jersey and Hawaii were in attendance. •

■ LEFT: Fred Lumb, Jr (l) and Fred Lumb, Sr. combined to take second place in Team Marathon. The Lumbs are from Levittown, Penn. ■ ABOVE: The Henry Racing Team did well with Michael (l) winning Kids Class and Ralph (c) winning A Mono and A Offshore. Ralph Henry, Jr.(r) competed in A Hydro. The Henrys are from Rialto, Calif.

Results of the 1994 NAMBA Nationals are as follows:

A MONO(3.5cc)
1. Ralph Henry
2. Ron Russell
3. .Bob Keeton

B MONO(7.5cc)
1. Doug DeLittle
2. Lenny Blake
3. "A" Team

C MONO(l 1cc)
1. Bob Keeton
2. Justin Hill
3. Jim Osborne

X MONO(l 5cc)
1. Justin Hill
2. Bill Duffner
3. Jack Oxley

A HYDRO
1. Mike Donovan
2. Kevin Behan
3. Gen Bussell

B HYDRO
l. Mike Donovan
2. Tracy Cyphers
3. Ralph Henry

C HYDRO
l. Gary Russell
2. Doug Dewitte
3. Al Zaporteza

X HYDRO
l. Jack Oxley
2. Doug Twaits
3. Doug Dewitte

A STOCK TUNNEL
1. Judy Hazlewood
2. Richard Hazlewood
3. Phil Spriggs

B STOCK TUNNEL
l. Ralph Henry
2. Doug Dewitte
3. Jay Duhon

C STOCK TUNNEL
1. Judy Hazlewood
2. Doug Dewitte
3. Bob Welch

A MOD TUNNEL
1. Jerry Dunlap
2. Cliff Walker
3. Bill Christiansen

B MOD TUNNEL
1. Tony Rhodes
2. Phil Spriggs
3. Larry Lyons

SPORT 21 HYDRO
1. Doug Dewitt
2. Al Waters
3. Peter Austin

SPORT 40 HYDRO-1
1. Jim Monroe
2. Ralph Henry
3. Al Waters

SPORT 40 HYDRO -2
1. Ralph Henry
2. Doug Dewitt
3. Gathie Galbraith

SPORT 60 HYDRO
1. Al Waters
2. Cathie Galbraith
3. Doug Dewitt

SPORT X HYDRO
1. Tony Rhodes
2. Doug Dewitt
3. Harold Dobbins

GAS MONO-1 (23cc)
1. Jack Oxley
2. Chuck Fondacaro
3. Ralph Henry

GAS SP. HYDRO-l (23cc)
1. Ralph Henry
2. Deevan Inouye
3. John DeLong

GAS OUTRIGGER-1 (23cc)
1. Rhodes/Hanson R/T
2. Henry Velasco
3. Chuck Fondacaro

GAS MONO-2 (35cc)
1. Gary Russell
2. Joe Cota
2. Bill Cain

SCALE UNLIMITED
l. Richard Fish
2. Al Waters
3. Al Zaporteza

A OUTBOARD HYDRO
l. Cathie Galbraith
2. Phil Spriggs
3. Jack Oxley

B OUTBOARD HYDRO
1. Jim Williamson
2. Cathie Galbraith
3. Lee Garcia

A OUTBOARD MONO
l. Clayton Hazlewood
2. Judi Hazlewood
3. Par Garcia

KIDS CLASS
1. Michael Henry
2. Christopher Grim
3. Tim Renner

TEAM MARATHON
1..Lenny Blake & Justin Hill
2. Fred Lumb, Sr. & Fred Lumb, Jr.
3. Gene Bussel & Mike Hercelinsky

A DEEP VEE/OFFSHORE
1. Ralph Henry
2. Richard Fish
3. Jeff Keeton

B DEEP VEE/OFFSHORE
1. Al Waters
2. Mike Donovan
3. Lenny Blake

C DEEP VEE/OFFSHORE
1. Al Waters
2. Don McKinney
3. Bill Bridge

X DEEP VEE/OFF.
1. Larry Knudson
2. Al Waters
3. Dave Rychalsky

GAS DEEP VEE/OFF. - 1
1. Bill Cain
2. Ralph Henry
3. Dennis Hoover

GAS DEEP VEE/OFF. - 2
1. Bill Cain
2. Gary Russel
3. Jerry Clement

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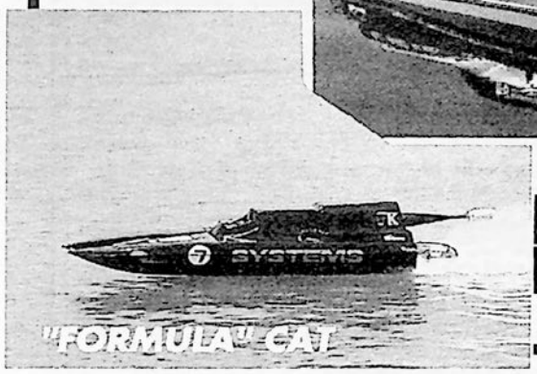

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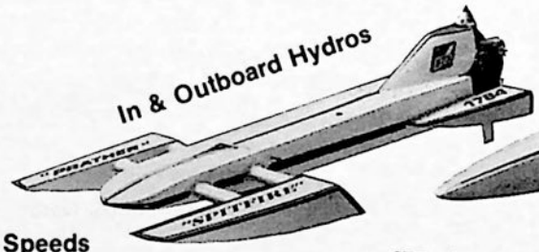

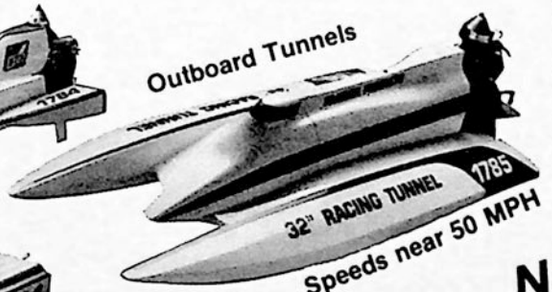

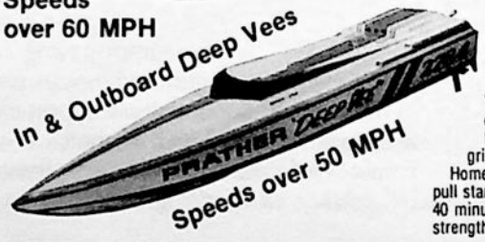

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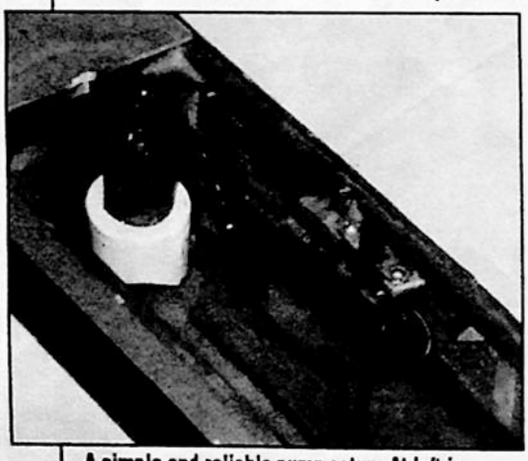
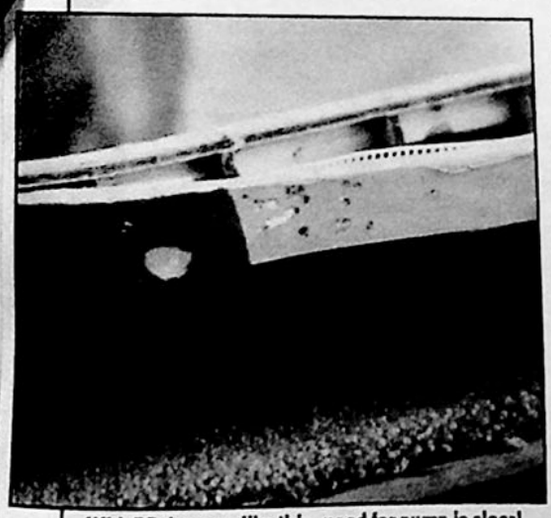
IN HARMS WAY

WELCOME TO the newest regular column to appear in *U.S. Boat & Ship Modeler*! "In Harm's Way" is dedicated to disseminating knowledge about that growing segment of RC modeling known as RC model warship combat.

For those who have not heard of RC model warship combat, it's a sport where some highly committed (?) modelers equip specially constructed WWI and WWII battleship and cruiser models to do battle. On-board BB cannons actually allow the models to shoot holes in other models. Thin, 1/32-inch-thick balsa hull skins allow BBs to penetrate, causing flooding and possibly sinking the model to the bottom of a shallow lake or pond. Bilge pumps are used to evacuate incoming water (up to a point).



A simple and reliable pump setup. At left is bilge pump, showing outlet tube running to exit port mounted into switchplate at deck edge. Pump is direct wired to own NiCd supply through switch. Pump turns on when ship is launched and runs till recovered. Foam channels water to pump.



With BB damage like this, need for pump is clear!

After a battle, BB holes are counted, points are awarded for BB holes and for sinks, and a winner is determined. Batteries are then recharged, BB cannons reloaded, holes in the hull are patched and a new battle is begun.

The models are not permanently damaged by this seemingly severe treatment — they are designed and built with combat in mind.

While some of the techniques used in building a ship for combat are similar to those of other RC hobbies, there are quire a few that are unique to the sport. That is the purpose of this column, to clear the air about what makes the hobby of RC model warship combat different. How the ships are constructed. How the systems are installed and operated. Where some of the more unique parts and equipment can be obtained. How the sport of RC warship combat is played. Where it is played. History of the sport. What ships are allowed by the rules of combat. What ships are good to build, which aren't and why. How battle damage is repaired. Between-battle maintenance. In short, anything and everything about the hobby.

You are invited to write with questions about RC model warship combat. I will attempt to answer all questions. Those with the most general interest will be published, with an answer, in this column.

You also are invited to submit photos of your warship models being built (or already built) for combat, along with a description of the model, materials, systems and your plans for its use upon completion. Photos and brief descriptions of local RC warship combat activities (organizational meetings, battles, building sessions, etc.) also are appreciated. As many as we have space for will be printed in this column.

Help us to help you in spreading the word about the "magnificent obsession."

BILGE PUMP SYSTEMS

For the "meat" of this first In Harm's Way, I will discuss one of the combat model's most important systems, the pump. Along with the BB cannons, the pump is what makes RC combat a viable hobby. BB cannons are the actual offensive part of the combat, but without the pump (defensive), combat sorties would be very short in duration.

I am often asked, "How many BB holes does it take to sink a ship?" My answer usually is, "One, if the bilge pump fails." A single BB hole in the right place will sink a model in short order, *IF* it lacks a functioning pump.

Depending on the type of ships involved and battling style and aggressiveness of the captains, dozens of BB holes can appear in the side of a single model within minutes. At the 1994 International RC Warship Combat Club (IRCWCC) nationals, at the end of one typical two-sortie battle, each ship had an average BB hole count of 31, 2 and 5 — that's 31 holes above the waterline, 2 on and 5 below the waterline. Average!

The low-count ship in that battle had only 2 holes above. The high-count, get this, had a count of 113, 5 and 11(129 total)! It sank, along with two others, making it a rather exciting battle. Of the other sinkers, one only had 22 holes, the other had 94. Of the ships that survived, several had over 50 holes, a couple had over 75.

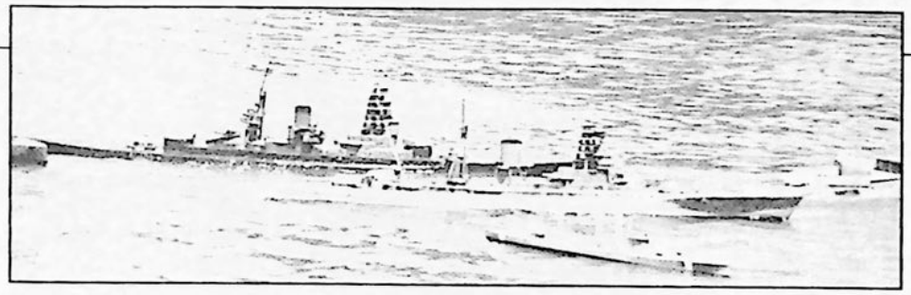
There is no minimum number of holes required to sink a model, as can be seen by the one that sank with only 22 holes. On the flip side of the coin, later in the same Nats, another model *survived* after accumulating 145 BB holes, 37 of which were *below* the waterline!

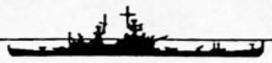
So why do some ships sink after receiving comparatively few holes and others can survive seemingly catastrophic damage? It all comes down to the pump system.

Pump systems vary from ship to ship; no two are alike. Every captain has his own pet way of doing things, but in general, a pump system consists of the pump, a power supply, an activator and flood control.

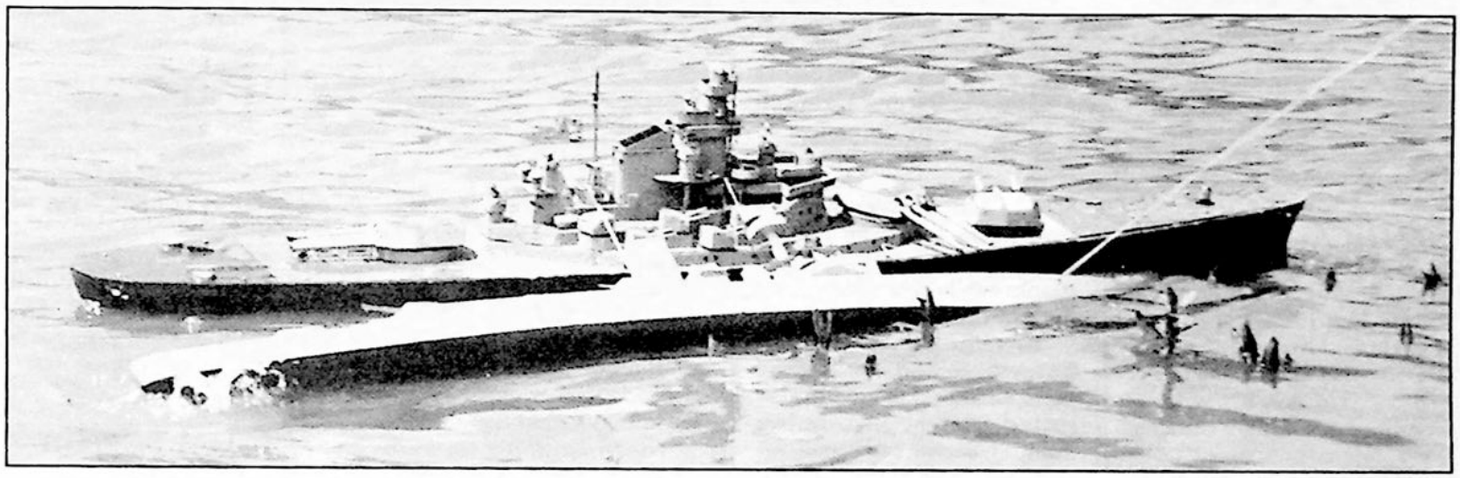
The pump itself consists of an electric motor, pump housing, base plate, impeller, outlet tube and an exit port. Pumps can be either homemade or purchased in kit form.

IR/CWCC rules limit pumps in three ways: First, the pump motor casing can physically be no larger than motors used for main drive. Second, the exit port may be no larger than 1/8-inch diameter. Third, it must be of a non-positive displacement (i.e., rotary vane) design. Within these





■ Left: As fleet battle rages, two IJN battleships in center are pumping — clear evidence of damage. ■ Below: USS Indiana finishes off DKM Lutzow, which goes down pumping. Due to malfunction, it activated too late to stop terminal flooding.



restrictions, anything that you can conceive and build to move water is allowed.

There is a practical limitation to pumping capacity that appears to be right around the two gallons per minute mark. After that, power consumption goes up exponentially. Several captains using pumps of their own design claim capacities of over two gallons a minute, but even they admit paying a horrendous price in power drain from their gel cell batteries.

Most pumps in use today will evacuate anywhere from 1-1/4 to 1-3/4 gallons per minute through an 1/8-inch outlet. Determining how much you can afford to pump (or not to pump) from your model will usually be determined by the size of your ship, i.e., how much of your ship's weight is to be allocated to batteries that power drive and pump motors.

The power supply for the pump can be the same batteries used to power the main drive motors, or it can be a discrete battery, not tied to the motors. In larger ships, which can afford the weight in batteries to power a two-gallon pump, it is usually "juiced" by large gel cells. In smaller ships, Nicads are the usual method of power.

The activator, or water sensor, is whatever is used to turn the pump on when incoming water reaches a certain level inside the hull. This can range from a float switch, transistorized water sensor, or a radio-operated switch. The absolute simplest (and most reliable) is a pump that is turned on manually when the model is put into the water and is left running until the model is recovered.

Remember the KISS principle here. Complexity in a pump activation system usually leads to unreliability, and a pump that fails to activate when water is coming in is just no good at all.

Flood control is something that is extremely important to the pump system, but is ofttimes overlooked by less-experienced captains. Flood control consists of raising as much of the bottom of the hull interior as is practical, leaving a narrow channel that will lead incoming water directly to the pump at the hull's lowest point, or sump. This prevents water from pooling at various points in the hull and gets it to where it can do the least damage, the pump's inlet port, where it can be picked up and moved outboard.

The most common method of raising the hull bottom is to place 1/4-inch-thick sheets of balsa or closed-cell foam into the bilges. Balsa sheets must be shaped to fit the curved interior of the hull, then resined into place and waterproofed. Closed-cell foam usually will conform to hull contours.

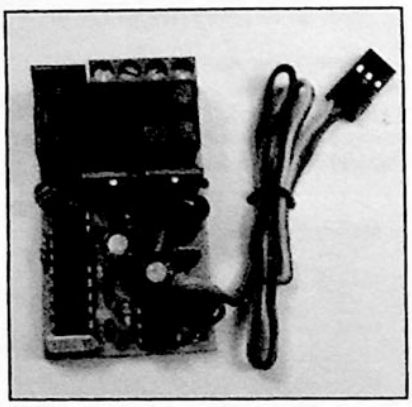
Not on the list above, but important nevertheless, is pump placement. Most ship models have a preference for sinking by bow or stern. It makes the best sense to place the pump in the end that tends to settle first. If you don't know which end a ship prefers, ask someone who has a similar class of ship. If that's impossible, it's generally best to place the pump somewhere in the after part of the hull. When moving forward, most models tend to pitch up very slightly, making the water run aft.

If you have properly built and installed your pump and have good flood control in your model cruiser or battleship, you should have no difficulty in remaining afloat even in the most hostile enemy waters. Great satisfaction can be had in watching your ship limp into port at the end of a savagely fought sortie, leaking from uncountable holes, your pump throwing a thin stream of water 8 feet high, and knowing that you dished out more punishment than you took. Even greater is the satisfaction if you have the pleasure of watching one or more of your dastardly opponents sink as flooding overcomes the capacity of his pump. Cheers from your fleetmates and groans from enemy captains as they go down only add to the experience.

If, however, you have not done your homework, you may be the center of a lot of unwelcome attention from the enemy fleet. In that case, the cheers that are heard may be in response to the stream of bubbles coming up from your own pride and joy. Be sure to wear swim trunks under your pants for the recovery! •

SHIPS STORE

BY BILL RICE



NAUTICAL THROTTLE

M.A.C.K. Products is now stocking and distributing the Jomar Products "Reliable Nautical Throttle, Model #7060. This unit measures 2 1/8"x1 1/4"x7/8" with a weight of only 1 1/2 ounces. It's a micro-processor controlled type speed control designed to work with any radio system, with a standard 1.5 millisecond "neutral" with no pot adjustments needed.

All commands to the speed control for neutral, forward and reverse range adjustments, and speed, are programmed into the speed control from the transmitter.

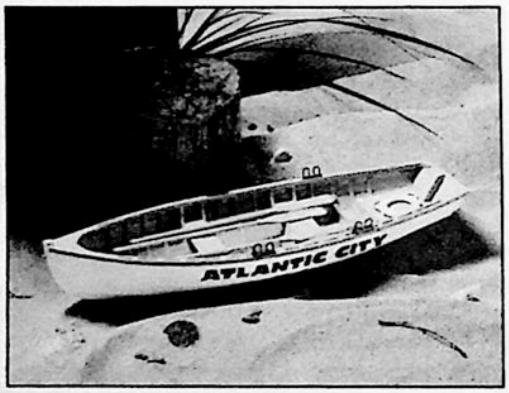
The Nautical Throttle is rated from 7 to 16 cells (8.4 to 20 volts) at 30 amps maximum, making it the perfect choice for models using 12 volts or more for main power.

For more information and a complete catalog, send $4.00 to M.A.C.K. Products Model Marine, Dept. USB&SM, P.O. Box 464, Long Branch, NJ 07740; or telephone (908) 870-2966 Monday thru Friday.

THREE NEW 'ROUND BOTTOM' BOATS

Midwest Products' Apprentice Wood Boat Model Kits feature three new "round bottom" boat kits, designed to make planking the hull, a traditionally difficult task, easy for the beginner. These models are built on a strongback over forms to assure correct hull shape. Flexible basswood planks easily create the round bottom hull shape.

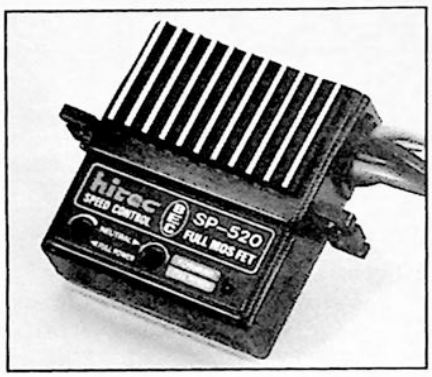
Kits include micro-cut basswood and mahogany parts, planking strips, full size rolled plan, construction manual and a complete fittings set. The three kits include: Sea Bright Dory Lifeboat, a Maine Peapod and a Boston Whitehall Tender. All are rated as Skill Level 2, and sell at a suggested retail price of $39.95.



From Midwest Products Co., Inc., Dept. USB&SM, 400 S. Indiana St., P.O. Box 564, Hobart, IN 46342; telephone (219) 942-1134.

SPEED CONTROL

The Hitec Sp-520 Plus is an upgrade of the SP-250 in two areas. One is the "polarity protection circuit," which will protect the circuits from destruction even if the user makes a mistake and connects the wires backwards. Second is the way the heat sinks are attached to the MOSFETS. The Plus uses a revolutionary heat conductive silicon which is molded for a perfect fit, resulting in better heat dissipation.



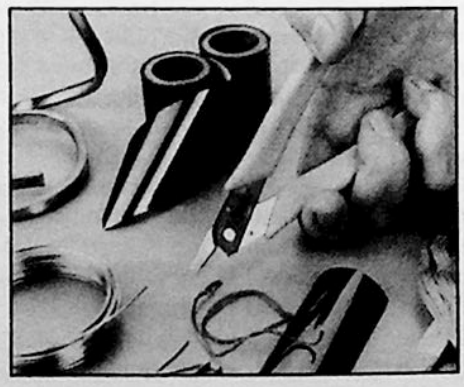
The maximum forward current is 560A, continuous 140A, current drain of 0.0126 ohm. It has a BEC at 5.6V.

Size is 1.77"x2.16"x0.78" at 2.6 oz.

From Hitec RCD Inc., Dept. USB&SM, 10729 Wheatlands Ave., Suite C, Santee, CA 92071; telephone (619) 258-4940.

CRAFTER'S SCISSOR EASY TO USE

A new scissor designed for model crafters who have difficulty in handling conventional scissors is available from Xuron Corp. The 440PET high precision scissor features an ergonomic design with large rubber holding surfaces for maximum cutting leverage and a return spring for a secure grip — and eliminates conventional finger loops.



It's an ambidextrous tool and cuts everything from mylar and paper to soft metals such as copper wire, tin foils and lead.

For more information, contact Xuron Corp., Abby Brusie Marketing, Dept. USB&SM, 60 Industrial Park Rd., Saco, ME 04072; telephone (207) 283-0594.

DIGITAL BATTERY ANALYZER

The Fatcat II is a fully automatic cycler, analyzer and peak charger all in one, available in NiCd and NiMh versions that allows you to detect battery problems before they can destroy your batteries.

The unit's digital analyzing capability will tell you how much performance your batteries will deliver. The RX side works with four and five cell RX packs with capacities of 600, 1200 and 1800 mAh. The TX side works with 8 and 9 cell packs with capaci-

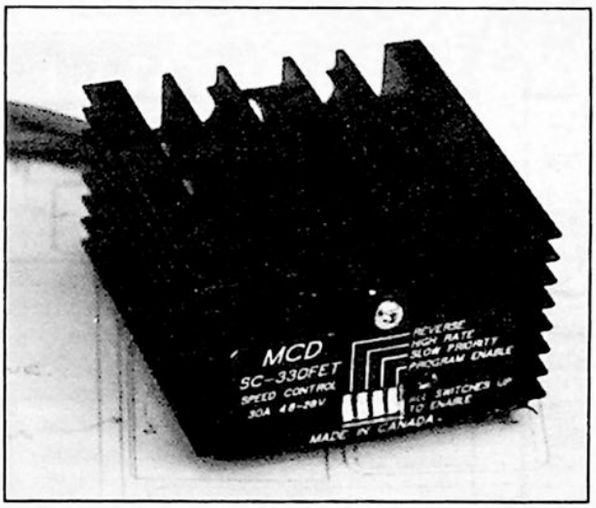
ties of 500 and 800 mAh. The unit is customizable for capacities from 50 to 2200 mAh.

The Fatcat II uses fully automatic, digital peak-detecting charging that safely charges in four hours or less. The auto trickle features maintains that 100% until you're ready to use your batteries.

Complete specifications and a free product catalog are available from Double M Electronics, Dept. USB&SM, 2309 Hanover Place, Bowie, MD 20716-1106; telephone (301) 805-9361.

SPEED CONTROL

The fully proportional forward and reverse SC-330 Digispeed Control for model boats features microprocessor control. The unit is user-programmable for neutral and full speed with no pots to adjust and has dual range control stick characteristics: a normal linear mode and slow priority mode which stretches out the stick characteristics so that by the time the stick is the 2/3 position, the speed is only at 1/3 throttle. the remainder of the stick travel is linear to full throttle. This allows super control at slow speeds.



The unit also features user-selectable dual frequency rates; low to eliminate motor whine and 1 khz for use with high performance motors. Other features include full MOSFET output, 4.8 to 28 volt capacity, 30 amp continuous output, water cooling capability and overheat shutdown.,

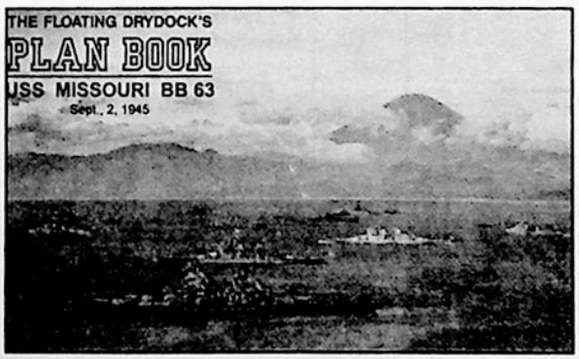
From Model Control Devices, Dept. USB&SM, Box 173, Bobcaygeon, Ontario, Canada K0M 1A0; telephone (705) 738-1335.

PLANS FOR THE MIGHTY MO

The Floating Drydock has a new plan book for the U.S.S. Missouri, the third in the Plan Book Series. The 126-page book, measuring 11x17 inches, features photographs of the huge battleship, plus definitive drawings with specifications of every part of this famous warship.

It was on the decks of the U.S.S. Missouri that the instrument of formal surrender of Japan to the Allied Powers was signed on September 2, 1945, thus bringing to a close the Second World War. The "Mo" was at anchor in Tokyo Bay. Even if you don't plan on building a model of the ship, the book will provide an interesting history of one of the world's greatest warships.

The book retails for $39.95 plus $4.00 shipping and handling. From The Floating Drydock, Dept. USB&SM, C/O General Delivery, Kresgeville, PA 18333; telephone (610) 381-2001.



LIFE LIKE MODELS

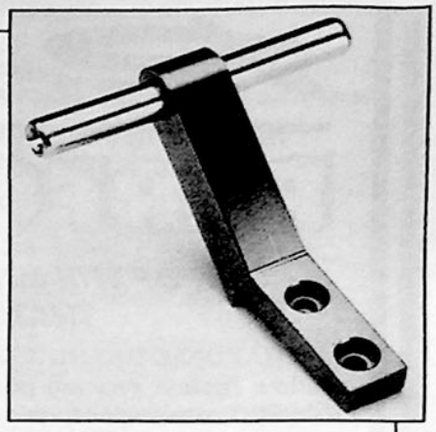
A complete line of items for model boat builders is available from Classic Model Marine, including custom built boats, accessories, boat kits, helmets, life jackets and realistic drivers. One of the fine models featured is a 1/4 scale, 48" mahogany, gas-powered Crackerbox Runabout.

For information on available products, contact Classic Model Marine, Dept. USB&SM, 1616 Sydney St., San Luis Obispo, CA 93401; telephone (805) 545-0712.

LAUNCH HANDLE

With new IMPBA rules requiring that all hydro style boats must have launch handles for racing, this item is sure to a hit with the RC boaters — it's a new T-style launch handle machined from high strength 6061 aluminum with a satin blue anodized finish.

It's just one of more than 600 products and a large hardware and accessory line available, and shown in the free 48-page catalog from Du-Pro Products, Dept. USB&SM, 480 Bonner Road, Wauconda, IL 60084; telephone (800) 848-9411.



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Known generally as the replacement of the Liberty ship, the 14,000 ton SD 14 general cargo ship can be found in all the world's ports and on the high seas under flags of many nations. This kit is a "card model" — a different concept in ship modeling — making of scale models from sheets of card on which the parts are printed to cut out, fold, score and glue together.

It is printed in black on manila card stock for the paint scheme of your choice. The model can be made for display or with suitable waterproofing can be made to operate by RC. This and other card models, as well as RC ships, are available from Model Boats Unlimited, Dept. USB&SM, P. O. Box 1135, Haddonfield, NJ 08033; telephone (609) 783-9163. For their 200-page main catalog and 100-page supplement,

continued on page 20

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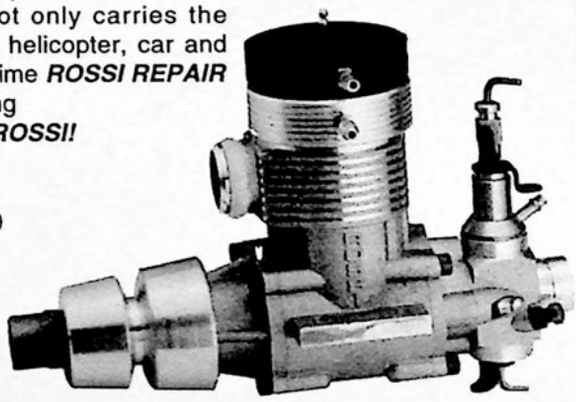

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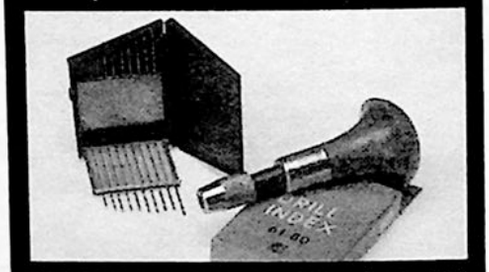

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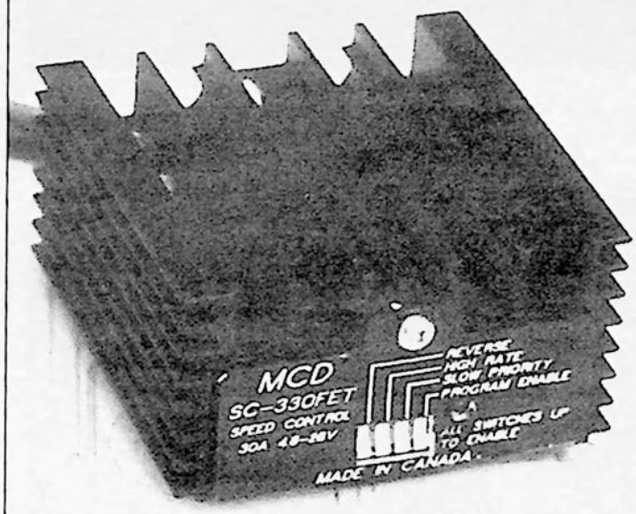

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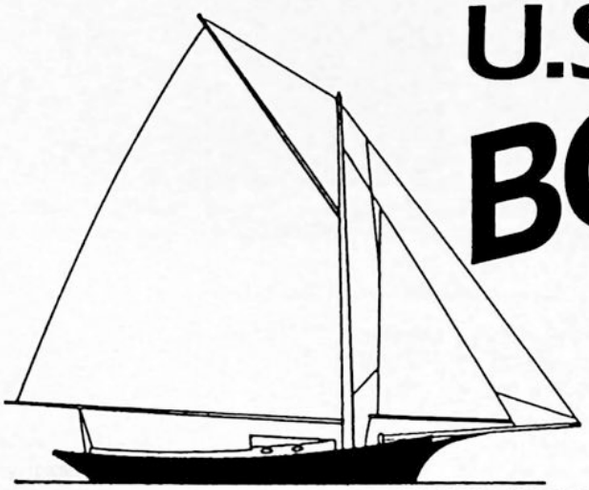

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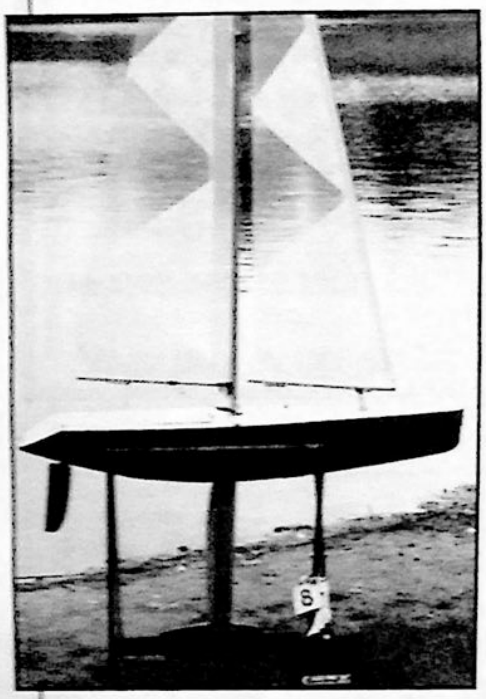
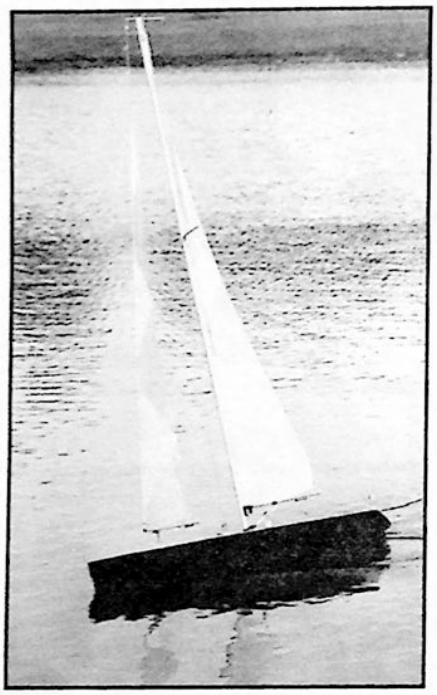




In far left photo, author Boness shows profile view of Dr. John, which shows hull rocker and mast/keel relation ship. In center photo, readers can see the wide deck after, but hull narrows quickly toward waterline. And in far right photo, hulll stays level when heeled, doesn't depress the bow and Dr. John makes a very small bow wake.

Fred Boness of the Ozaukee Model Shipwrights of Fond Du Lac, Wisconsin, recently sent in a report on one-meter design and development activities of his club. His contribution is at the heart of the model yachting sport because Fred is freely contributing the technical information that is so important to helping new folks enjoy the design and construction side of our sport. Also, he names names and gives credit to the fellows in his club who actively support and encourage the growth and development of new modelers. This reaches a focus in the naming of his new one-meter for the late Dr. John Kelso, a club member and physicist who made continuing contributions to the sport, the local club and its members. If each model yacht club produced this much input to the information flow in our hobby just once a year, we would be afloat in designs, data and experimental results that would fill a substantial publication by itself.

The remainder of the text is taken from materials provided by Fred, some just as received, some edited, and some with additional commentary. Should you desire additional information, contact him directly at 685 W. Division Street, Fond Du Lac, WI 54935. Be sure to send an appropriately sized, addressed and stamped envelope for his convenience; and a sawbuck or two if you expect him to provide you with copies of anything. But let's hear from Fred:

The Ozaukee Model Shipwrights race two classes of model yachts, the AMYA One Meter Class and the Americas Cup Class, at a park in Cedarburg, Wisconsin. For a small club, we are lucky to have a lot of talented modelers.

Four years ago I was introduced to model yacht racing by Tom Houle, well-known for his published articles and recent book on the sport. In addition, we have Rolf Anderson, a tool and die maker who casts the keel bulbs for our two classes of boats. Gary Cooper has teamed with these two to develop a very tough sail winch and sail sheeting scheme for the AC Class boats which has such interesting features as shock absorbing springs in the sheet rigging. David Blake has been experimenting with wing keels for one-meter boats. His latest boat will stand on the keel without the need for a cradle. It looks like a stork. This is just a sampling of the interesting folks who contribute to our club's activities.

I started with a Victor Soling and have since built two one-meters of my own design. I think I must be genetically predisposed to be an engineer, for I have never had a hobby where I wasn't most interested in the original work that could be accomplished. That was always where the most fun seemed to be and so it was natural that I would be most interested in development model yacht classes where new hull form concepts could be tried.

My first scratch-built boat was dubbed the "mini-Marblehead" by my clubmates and that was essentially what it was. I had reviewed current top M-Class designs to develop a feeling for the trends in that class while refining the concepts for the new boat. It was quite successful and that impeded the incentive to start on the next in the series. However, after 3 years of hard racing, she was quite worn out and suffered with a number of design and structural problems that were the result of a first effort.

Design on the second boat started in the fall of 1993, with a review of what seemed to have been right on the first boat and what should be carried forward into the new boat At the same time, I started collecting information on full-sized Whitbread racers and Maxi boats. I liked their lines and wanted the new boat to have a more realistic "prototype-look"

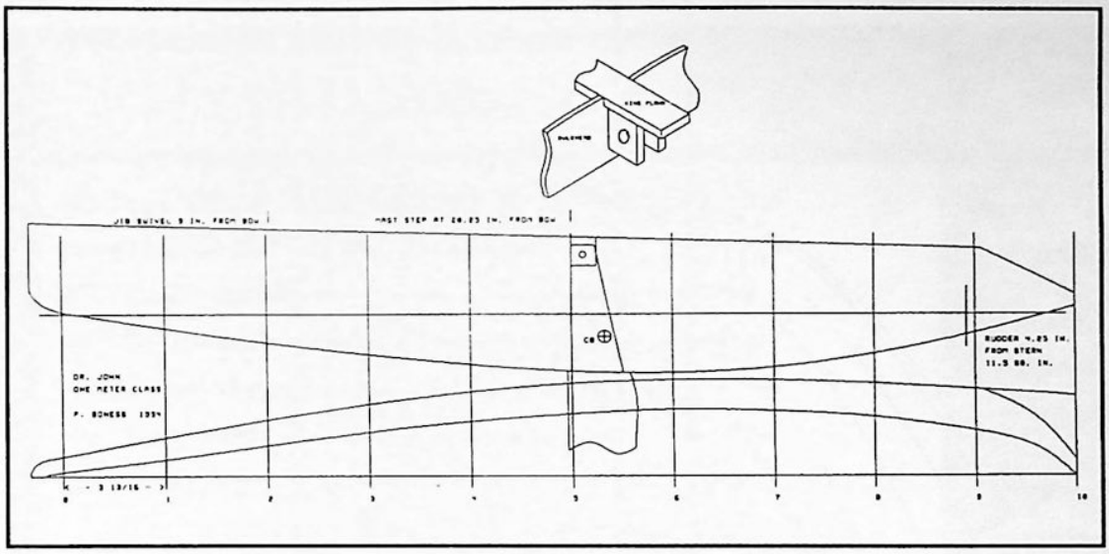
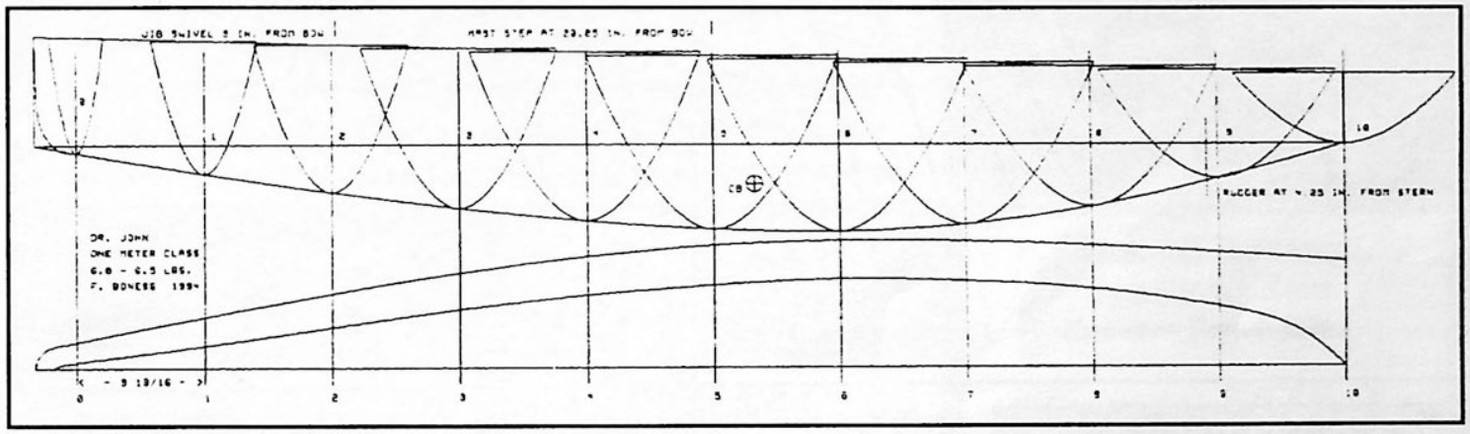


Figure 1 shows profile of Dr. John. Detail shows upper end of fin mount inside hull. See text info.

Figure 2 is a schematic of station sections. Station 10 shrinks when slope to transom is built in hull aft of Station 9. Well done.



than what I had been seeing in existing one-meter designs.

Tom Houle was providing me with articles and plans for America's Cup Class (AC) boats, other one-meters and on general design issues. One of the ongoing debates concerned the wide hull vs. narrow hull. There was the assumption that the hulls sections should be semicircular to present the minimum wetted surface and thereby minimum skin drag. My response to that generality was to suggest that if semicircular sections were the controlling variable, we ought to make any section through the hull semicircular, thereby reinventing the coracle, a rowing craft which looks very much like a soup bowl!

Clearly there are other factors at work that contribute to hull drag. Form drag and wave forming resistance seem to be possibly more important at the hull sizes we sail based on observations of the various hull styles raced in my club. This seemed like the right time to test that theory. *(If the same keel/bulbs and rudders could be fitted to pairs of hulls, then the hull towing procedure outlined in the Winter 1994 U.S. Boat and Ship Modeler Strictly Sailcolumn could illuminate these characteristics without the added complexities of rigs and sails.— RAC.)*

The last part of the preliminary analysis was a consideration of local conditions. The first boat was 8 pounds displacement in its final form. This is significantly heavier than current top one-meter designs, but it is not inappropriate for the wind and competitive conditions where I race. Winds here average 6-8 mph and we race in winds of 16+ mph several times during the season, according to our club meteorologist, Dean Reinke. Light boats can't absorb the power available on a really windy day. They also have problems tacking in higher wind ranges because they lack the momentum to carry their way through the eye of the wind. Boats in our area generally fall into the 7.5 to 8.5 lb displacement range. *(Good point! San Diego Argonaut designs are definitely optimized for the conditions experienced in Southern California. Such designs may or may not remain competitive when sailed in different wind and wave regimes. — RAC)*

The design criteria that would influence the new design were the following:

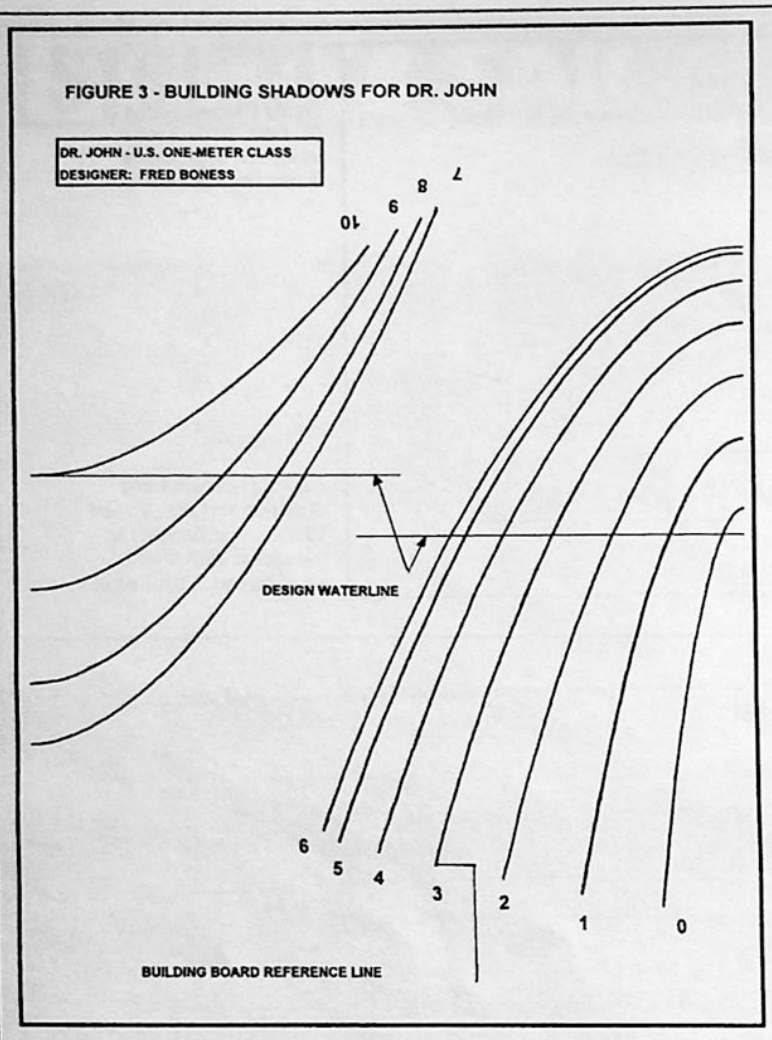
1) I liked the bow shape and proportions of the first boat. The new boat should also have a fine bow and the widest beam should be 60% toward the stern. The bow is plumb, but flares at the top to provide reserve buoyancy.

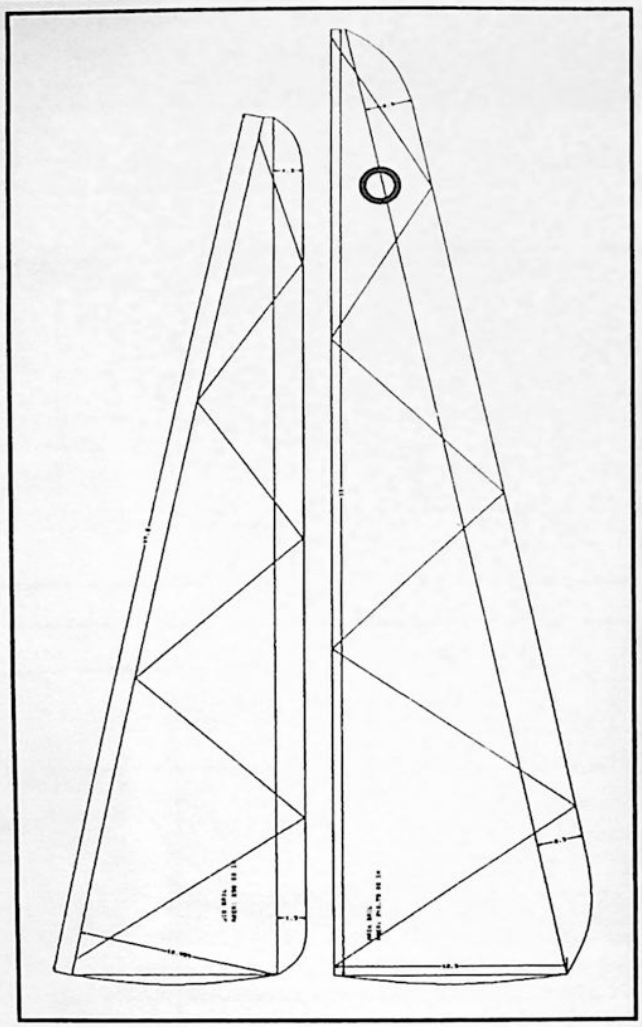
2) The deck will contribute a lot to the boat's appearance of being a "real" sailboat, Good proportions would have a deck beam of about 7.5-9". The deck will be fairly wide at the stern. No canoes allowed.

3) The hull cross-section is not to be constrained to circular arcs. The waterline beam will be narrow. These two choices mean that elliptic and parabolic sections will be explored to establish the desired deck contour and waterline plan with a minimum increase in wetted area.

At this point in the process it was early 1994. Our good friend and companion, Dr. John Kelso, physicist and ship modeler, had passed away. The new design was to be called Dr. John in his honor and memory.

Design work began by determining fair lines for the deck and hull bottom rocker in the side view as shown in Figure 1. In front view I was then able to select parabolic sections that had a reasonable flare which could be fit at each station as seen in Figure 2. Note that Station 10 gets quite small when the deck is sloped down to the transom. Though it looked a bit extreme, the waterline plane seemed to fit





Figures 3 and 4 complete the detailed information Fred Boness supplied with his commentary. Sail plan at right is fully described, with numbers, in text.

The statistics on the boat are as follows:

Displacement: ..... 7.75 lbs.
Hull draft: ..... 2.75"
Ballast/Disp. Ratio: 0.677
Max. Deck Beam: ..... 8.375"
Empty hull: ..... 0.81 lbs
Waterline Beam: ..... 5.5"
Bulb and fin: ..... 5.25 lbs.
Fin: ..... 31 sq.in.
Radio Gear: .....0.5 lb.
Rudder: ..... 11.5 sq.in.

our third design criterion and we went ahead. The actual maximum waterline beam chosen was 5.5", which is right in the current range for modern skinny hulls. Figure 3 provides full-sized building shadows for Dr. John. You will need to remove the planking thickness from each shadow or you'll make a bigger boat that will be heavier. You need only photocopy the page a couple of times, make some mirror image tracings and paste full-sized patterns together. Station #3 is shown with the form extended downwards to the building board.

I fiddled with the plans a bit, and if semicircular sections are used for the same deck and rocker, one winds up with a 7.75" max. deck beam and a waterline max. beam of 6.5". Someone might want to try building that one up for comparison.

Displacement calculated to 6.5-7.0 lbs. using the maximum waterline on the plan. This seemed reasonable, but I still wanted to build the boat to the 8 lb. displacement so it would match the previous design in weight. The hull sections were printed using my PC CAD program at 110% size. This produced a 20% increase in displacement and would allow an 8 lb. boat to be built.

The station plots were glued to foam board and cut out with a sharp knife to give the shadows to be used for planking the hull. With the shadows mounted upside-down on the building board, it looked more like the skeleton of a dinosaur than a sailboat. I started to have second thoughts, but then gathered my courage and plowed ahead. *(In general, one-meter hulls are planked with fairly thin (1/8") stock, usually pine, cedar or spruce. Plank widths are typically 3/8"-1/2". - RAC)*

Planking the boat is a test of patience. I can do between 2 and 4 planks in an evening. This hull requires 40 planks because some have to be rather narrow where the hull curves sharply near the keel. They all must be tapered and that takes time. I used Tom Houle's carpenter's glue method and that works well. It allows time to position the planks, something you don't have if you use CA glues. The hull is curved everywhere, but in some places it is fairly subtle. Care is needed to insure that the hull doesn't develop flat spots.

The transom and deck were made from 1/32" aircraft plywood. I don't think I am taking a terrible penalty on weight since the plywood lets me do away with almost all timber framing. It adds substantial strength to the hull and essentially becomes a monocoque fuselage.

The fin area of 31 sq.in. is slightly less than typical, and considerably smaller than the previous hull's 45 sq.in. fin. It is likely that the increased lateral area of the immersed hull reduces the need for fin area. Sailing performance seems to bear this out.

The fin is made from three maple strips of 1/2" thickness glued together to give a

continued on page 44

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PRODUCT SURVEY

BY PHIL DYSKOW

KYOSHO HYDROJET 750

ANOTHER EASILY ASSEMBLED KYOSHO KIT THATS WELL MADE FOR FIRST TIMER FUN!

HAVING PREVIOUSLY built and sailed several of the Kyosho RC sailboats, I was anxious to try my hand at one of their electric-powered boats. I jumped at the chance to test the HydroJet 750 unlimited hydroplane.

I've always had good experiences with Kyosho kits and this boat proved to be no exception. The HydroJet Jet 750 kit includes a factory-assembled, white ABS, blow-molded hull and deck. They are well-formed, with uniform contours and sharp hull corners where needed.

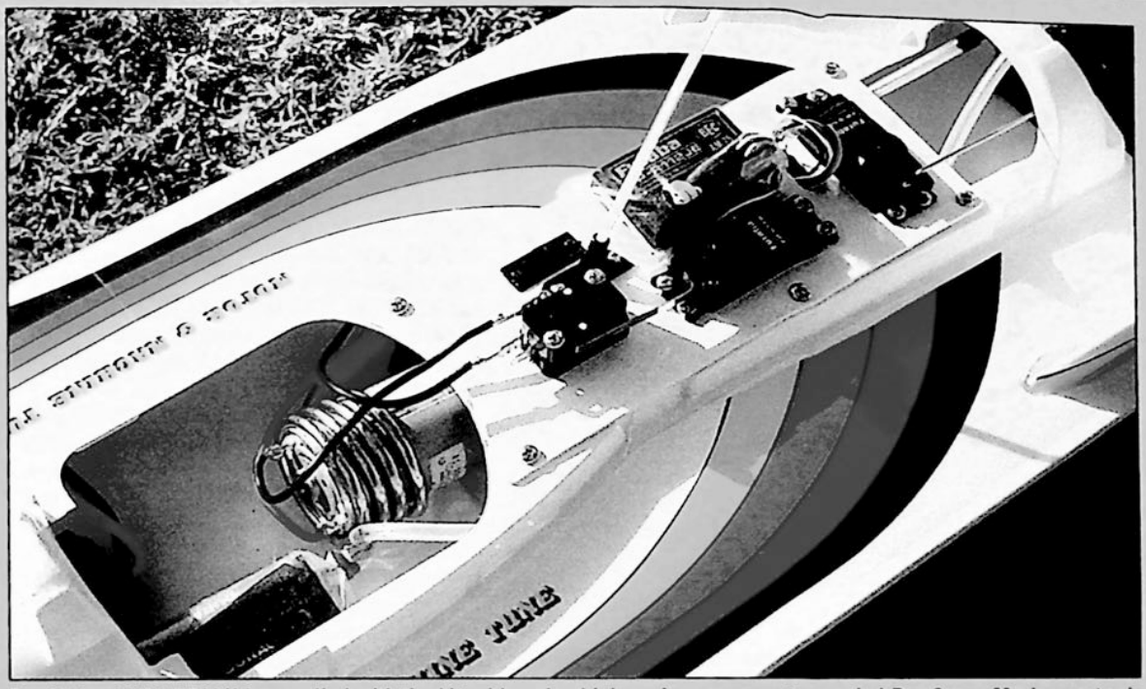
The motor supplied with the kit is a Mabuchi RS-550SH, and a higher-performance, water-cooled Rev Super Marine motor is available from Kyosho as an option. Other basic components like outdrive, propeller and throttle micro switch are included.

You must provide a two-channel RC system, a NiCd battery pack to power the motor and a AA battery box with batteries to power the receiver and servo units. If you don't already have one, you probably will want to purchase a quick-charger for the NiCd battery pack. Gets you back on the water quicker!

Assembly of this kit is very straightforward, and it will be easy for the first-timer to achieve satisfactory results. Many advanced modelers may wish to modify their boat to enhance performance. An excellent article in the Spring 1993 issue of *U.S. Boat and Ship Modeler* by Jay Turner covers this subject. *(Available for $5 postpaid from U.S. BOAT & SHIP MODELER, Box 2459, Capistrano Beach, CA 92624-0459 — Ed.)* However, my intended usage was purely recreational and I assembled the boat as specified in the instruction booklet.

The first step in assembly is to join the hull and deck pieces. Apparently, a number of HydroJets come with the hull and deck assembled at the factory. As my kit fell into the latter category, it only was necessary to tank test the assembly to insure that there were no leaks. (It's a good idea to test the boat for leaks at various stages of assembly. This can save a lot of

Hydrojet 750 is exciting to see as it sprints through dark water.



The Mabuchi RS-550SH is supplied with the kit, although a high-performance, water-cooled Rev Super Marine motor is available as an option. Shown also are Futaba receiver and servo units, and the buyer needs a 2-channel radio to run.

grief later on. A large sink, bath tub, pool or jacuzzi will serve for this purpose.)

The next step involves drilling various holes in the hull and deck for component parts, and trimming away the ABS material in several places in the area of the engine cowl. Although there are a number of different tools that will do a satisfactory job of trimming away this material, extra care should be taken during this step. The fit of the cowl, and the final appearance of the boat, can be compromised if errors are made by rushing or not paying attention. Two tools that make this job easier are a hobby knife kit and a Dremel tool with attachments.

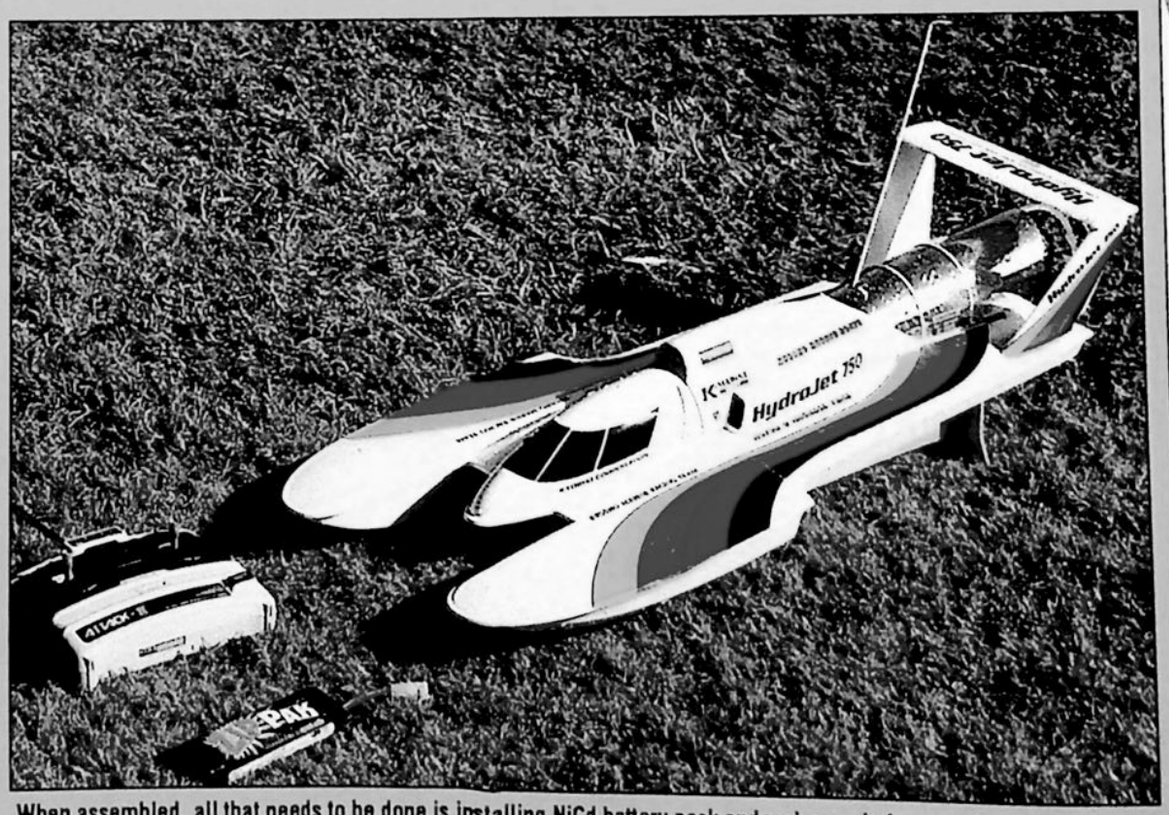
There are a number of component parts such as the hull skeg, outdrive bracket and engine platform that require through-bolting to the hull. If not properly sealed, these can cause leaks that are difficult to address after assembly is complete. I took the extra step of sealing these parts with 3M 5200 Marine Sealant. This is a very durable sealant that has a slow cure rate and remains flexible over time.

Securing the motor mount platform requires through-bolting from the bottom of the hull. This leaves four screw heads sticking up in an area of the tunnel that should be smooth to minimize drag on the hull. To me, this is a negative in what is otherwise a very well-thought-out design.

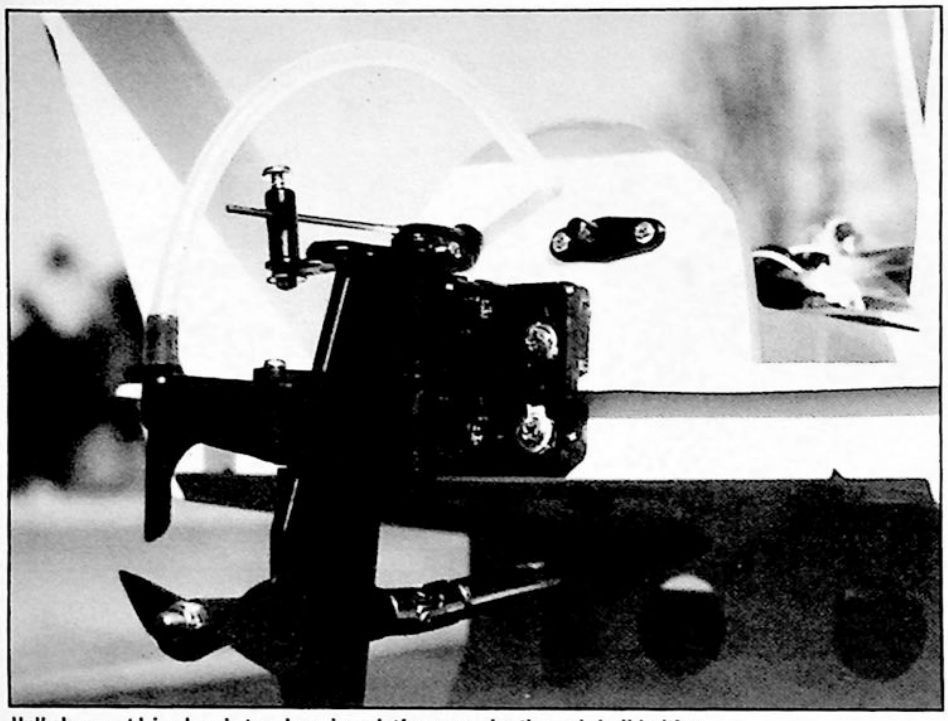
The drive system consists of a single outdrive that is connected to the motor via a jack shaft. Assembling the outdrive is easy, but it is necessary to maintain proper clearances between the prop shaft components and to use plenty of waterproof grease. There are hexhead set screws at either end of the outdrive shaft to make adjustments simple.

The jack shaft that connects the outdrive to the motor runs through a sealed tube that has metal bushings at both ends. It is best to apply plenty of waterproof grease to the shaft prior to placing it in the tube. The aft end of the shaft and tube assembly exit the hull prior to attaching to the outdrive. The area where these components exit the hull must be carefully sealed at this time. The instructions recommend epoxy glue, but I again used 3M 5200 because of its flexible properties.

The platform that contains the radio control fixtures is installed directly over the shaft tube. However, if the tube is properly, installed it should not be necessary to frequently remove the platform for access. Prior to affixing the platform, secure to it the helm servo, throttle servo, throttle micro switch, on/off switch and AA battery pack. When installed, the platform rides under the



When assembled, all that needs to be done is installing NiCd battery pack and we're ready for sea trials! First shakedown cruise is wisely at reduced power.



Hull skeg, outdrive bracket and engine platform require through-hull bolting.

SPECIFICATIONS

Length Over All ..... 30.7 in.
Width ..... 13 in.
Weight ..... Approx. 3.7 lbs.
Maker ..... Kyosho, Dept. USB, P.O. Box 9021, Champaign, IL 61826-9021; (800) 682-8948, ext. 141L.
Radio System ..... Futaba Corp. of America, 4 Studebaker, Irvine, CA 92718; (714) 455-9888

cowling assembly that is easily removed for convenient access.

Steering is accomplished by a link arm that runs from the helm servo through a fixture on the transom, and on to a steering arm on the outdrive. Throttle position is governed by another servo that makes contact with a lever on the micro switch, moving it through a narrow arc. Adjusting these components to achieve proper throttle travel and steering position is simple and straightforward.

The HydroJet comes with a spoiler/wing that's screwed to the aft deck just forward of the transom. The wing is lightweight, which makes it wobble back and forth somewhat. I would have preferred a more rigid assembly, and it appears that stiffening this component could be easily accomplished.

One thing that I have always appreciated about Kyosho kits is the quality and detail of the decals that are provided. In the case of the HydroJet 750, the decals literally make the kit come alive. Up until this step, the kit resembles a refrigerator in that the entire hull assembly is white. After applying the full set of decals, the HydroJet takes on the realistic appearance of an unlimited hydroplane.

The engine cowl assembly decal is of a chrome-like silver finish that gives this component a polished metal look. The sponsons and side decks are covered in black, red, orange and yellow stripes in an interesting double curve pattern. The stripes and cowl finish are complemented by a number of very realistic copy block decals that give the HydroJet a "factory team" look.

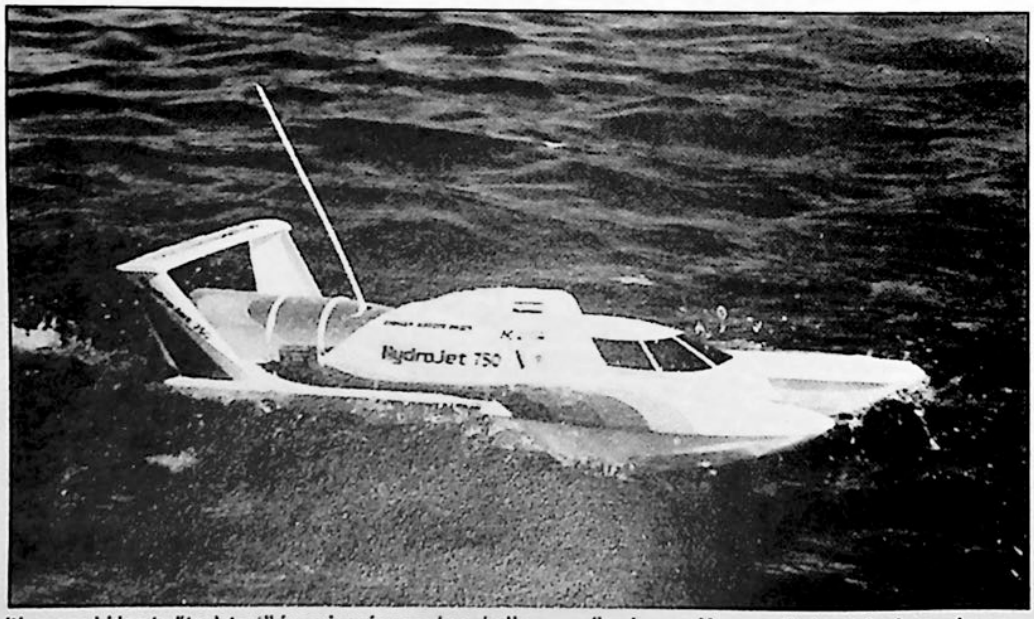
At this point I installed the NiCd battery and the upright antenna fixture, and proceeded to my pool for a thorough tank testing prior to the first run. I ran a final test for hull leakage, athwart trim and fore and aft trim. I assumed that there was to much bow-up trim and moved the NiCd pack a little forward to offset this. After the first trial run I learned that this adjustment unnecessary as the HydroJet runs best with a little bow-up trim.

I also tested the operation of the Futaba Attack III radio, insured that I had proper throttle and steering control, and determined the range limitations of the control system. These steps may seem unnecessary, but I much prefer to discover faults in the privacy of my home as opposed to in front of my peers at a crowded facility.

I am not an experienced racer, and I didn't test the HydroJet under the radar gun. However, I was very pleased by its performance. It isn't bothered by a light chop, but I suspect that rough water conditions would severely limit performance. Steering control is reasonably precise and side slip is minimized due to the hull skeg that provides substantial lateral resistance.

In conclusion, this kit is fun, it's easy to build and it performs well. With past Kyosho kits, I felt some instructions were vague; this kit includes a supplemental instruction sheet that provides additional assembly information, a repair service address and a list of available replacement parts. This supplemental sheet is a big improvement and will be much appreciated by the builder.

I recommend this kit without reservation, particularly for the first-timer or recreational user. •



It's a good idea to "tank test" in swimming pool or shallow, confined area. You can find any leaks early, before having to swim for your new craft! See text.

WRAM SHOW 95

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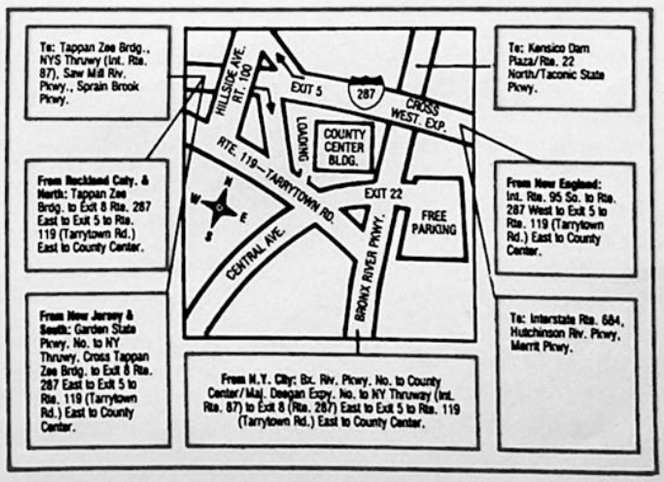

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PRODUCT SURVEY

BY PHIL DYSKOW

THUNDER TIGER *VICTORIA*

A GOOD-LOOKING CRAFT FOR BEGINNERS THAT'S EASY TO ASSEMBLE

Victoria is an uncomplicated, easy-to-assemble RC sailboat that is ideally suited for the first-time skipper or beginning RC enthusiast. It is mostly prefabricated, has a minimal number of component parts and comes with an excellent instruction booklet. This kit has no pretensions of being a race champion, but it will certainly offer many hours of pure sailing fun.

The one-piece hull and deck structure are made of blow-molded ABS material. White in color, it doesn't need painting and requires only minimal cutting and trimming. It is necessary to cut an opening in the deck for the radio compartment hatch, but any sharp hobby knife will suffice to accomplish this step.

Victoria comes with a sturdy, die-cut plywood stand that is very rigid, and it makes an excellent platform from which to complete the assembly process. The stand includes foam rubber covering for the top sections to protect the hull from scratches. Die-cut plywood also is used to construct the box that contains the receiver, servo units, AA battery box and on/off switch. As both of these plywood parts will eventually contact water, it is a good idea to apply a suitable finish to seal the wood. I used a marine spar varnish for this purpose.

The radio control components fit snugly into the plywood box and remain accessible after installation due to a sliding access hatch. However, the on/off switch may prove difficult to reach as the hatch's aft movement is limited by the sail control line when attached to the mainsail. No aftermarket sail winch is recommended, but the kit includes a sail winch arm that attaches to the servo for wider travel and improved leverage. The instruction manual suggests installing the RC box at an early stage, but I waited until after I installed the keel assembly and rudder assembly in order to have better access to these assemblies during installation.

The bulb keel design that is employed on *Victoria* is a proven concept that offers many advantages over a conventionally shaped keel. Having the weight low in the bulb improves the center of effort and stiffens the boat in a breeze. It also simplifies assembly as opposed to pouring internal ballast.

The bulb must be painted as it comes in raw metal form. A primer coat and two coats of spray epoxy in semi-gloss white provide a durable finish that is a close match to the hull color. When painted, the bulb is glued and screwed to the plastic keel fin and the whole assembly then is inserted into a recess

What a classy way to introduce the newcomer to radio-controlled sailing! One-piece deck and hull are made of blow-molded white ABS material.

in the hull. A compression tube carries the load of the keel through the hull to the deck for extra rigidity.

Installation of both the keel assembly and the rudder tube are very straightforward. However, it is well worth the extra time to carefully seal both items. I employed extra layers of marine sealant in the inside areas where the rudder shaft passes through the hull, and also where the keel compression tube passes through. Be sure not to get sealant inside the rudder tube or the rudder shaft will seize up when it cures.

hull for leaks. If there are any leaks they will be much easier to deal with at this stage of assembly.

The cleats and many of the deck fittings are secured to the deck with self-tapping screws. The use of screws makes removal or replacement of fittings easy. Many other fittings such as rigging eyes, sheet pad eyes and the jib tack fitting are glued to the deck. These glued fittings will be much more difficult to remove or replace, and I would have preferred to see more deck hardware secured by screws.

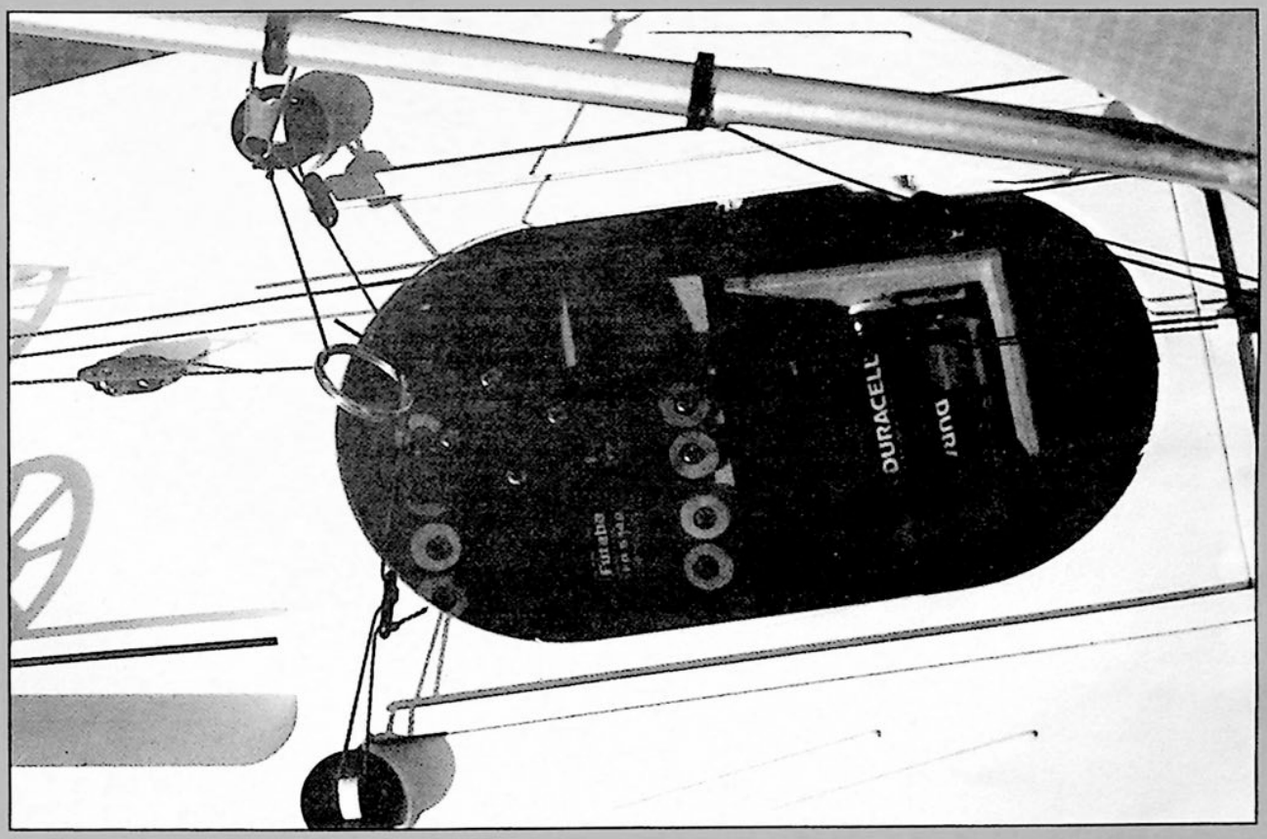
Victoria carries a 7/8 rig that employs a jumper strut on the main mast and a relatively long crane at the mast head. Additional support is provided by intermediate upper shrouds, and double lower shrouds minimize mast pumping.

The jib sail is tacked to the foredeck via a line that runs from the jib boom, through a deck eye and on to a cleat. The jib head is connected to the mast via a line that runs to a hole in the jumper strut and then on to a cleat on the mast head crane. There is no headstay, and forward mast support is accomplished by maintaining proper luft tension on the jib.

The mainsail is secured to the mast with a series of metal snap hoops placed along the luft. Luft tension is achieved by a halyard that runs from the head of the sail to a cleat on the masthead crane. Boom placement is fixed, but the mainsail tack line is run down to a cleat on the deck so additional tension can be achieved. The mainsail has three full-length battens that aid in maintaining sail shape and leach tension.

The entire rig can be easily removed for storage or transport due to liberal use of snaps and three-hole adjusters. The over-all dimensions of *Victoria* are such that it will also fit inside many vans and large cars with the mast attached.

The visual effect of the completed yacht is altogether pleasing. The colorful white, blue and yellow sails are complemented by a similar color scheme on the side of the hull. The way the sail trim system is set up creates a little bit of deck clutter, but it is not objectionable. Trimming off the dead ends of the lines as short as possible helps a lot.



The kit even comes with die-cut plywood stand that will house receiver, servo units, AA battery box and on/off switch. You should take precautionary step of sealing wood with marine varnish.

After the rudder and rudder post have been installed and a proper cure time has passed, it is a good idea to float test the

After a final tank testing and checkout of the Futaba Attack III radio control, I test sailed *Victoria* in a strong breeze on a cool Southern California afternoon. At first it had difficulty standing up to its generous sail plan in these conditions, but between gusts it settled down and tacked and jibed crisply. Its best point of sail was a beam reach.

A second sail provided slightly improved performance as I raked the mast forward to decrease weather helm. I also tried to adjust the sail trim line to provide a greater trim range in or out, but I was only marginally successful.

Overall, this kit lives up to its billing as an easy-to-build RC sailboat for beginners and first-timers. Its sailing performance is adequate. It will not provide the ultimate in performance, but it will not embarrass anyone, either. It's a nice way to get a friend started on a pastime that is both rewarding and fun! •

SPECIFICATIONS

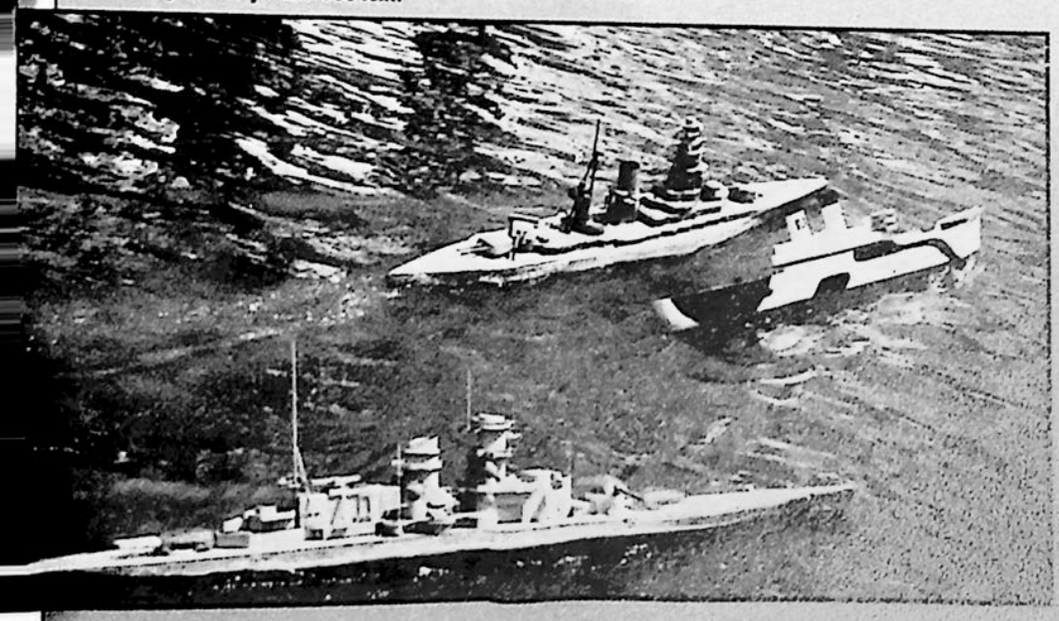
Length Over All	30.7 in.
Beam	7.4 in.
Mast Height	42.75 in.
Sail Area	433 sq in.
Weight	4.6 lbs.
Maker	Thunder Tiger USA, Dept. USB, 2430 Lacy Ln.#120, Dallas, TX 75006;(214) 243-8238
Radio System	Futaba Corp. of America 4 Studebaker, Irvine, CA 92718; (714) 455-9888

1994

INTERNATIONAL RC WARSHIP COMBAT NATIONALS

BY VICE ADMIRAL BRIAN K. CRAVEN

A happy group of Allied captains (back row, left to right): Don Cole, Steve Baker, Chris Pierce, Bart Purvis, Steve Milholland, Brian Craven and Willard Adams. (Front Row, left to right): Andrew Kricke, Admiral Jim Pate, Marty Hayes, Justin Craven, Rick Whitsell, Paul Broring and James Foster. (Photo by Colleen Craven). BELOW: Mutsu attacks large Allied convoy ship as Bismarck moves alongside to add her firepower to sinking. In top right corner is the Axis forward base and targets, which were goals of Strategic Victory Plan. See text.

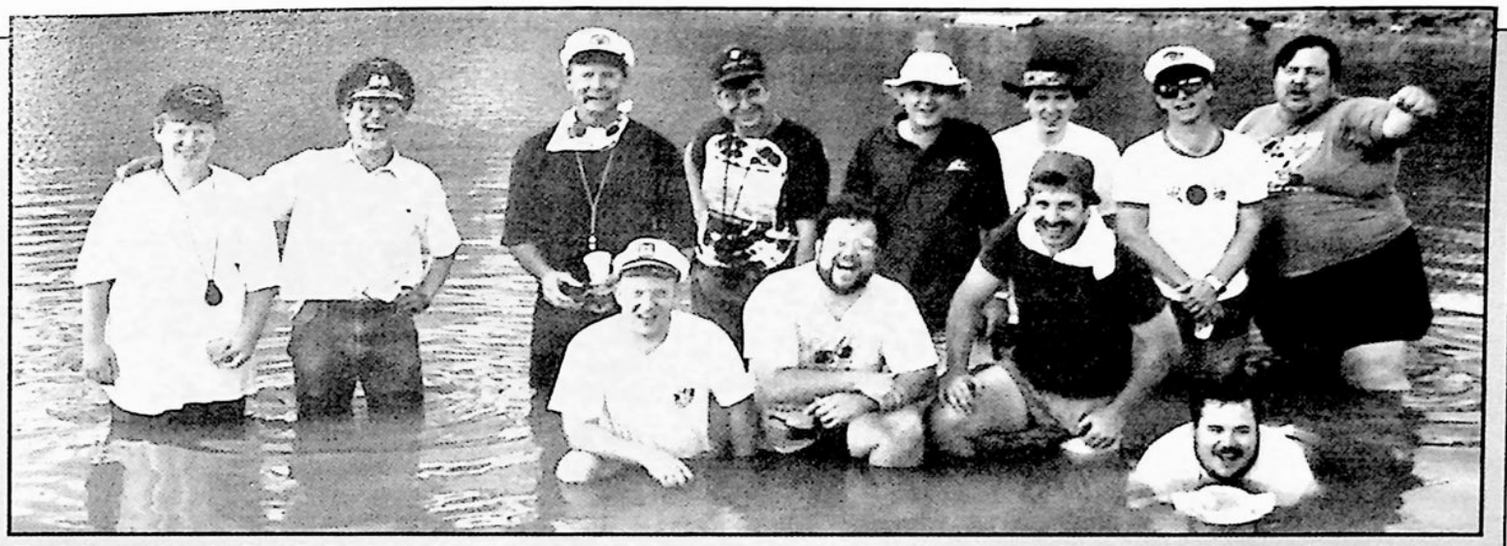


THE IRCWC NATIONALS is a week of fun and combat between RC model warships. Skippers build 1/144-scale warships, arm them with low-powered BB cannons, then try to sink or damage scale warships skippered by opposing captains.

The hobby was started 18 years ago in Texas by Stan Watkins, Jeff Poindexter and D.W. Fluegel. On October 23, 1977, the first RC warship, light cruiser *USS Ardmore*, went to sea and actually fired BBs from her decks. The hobby has spread nationwide. Captains battle at remote ponds, in regional meets and in the week-long Nationals held in July each year. The hobby is governed by a central executive board and a national rule book.

Each model is of a ship built between 1905 and 1946. They are made of plywood, balsa or from the kits and fiberglass hulls produced by Swampworks Mfg. They are powered by electric motors and controlled by standard radio control.

The single-shot, CO2 cannons shoot BBs. Cannons have 50-round magazines and do impressive damage to thin hulls. Under IRCWCC rules, holes are counted as follows: 10 points for hits from the main deck to the waterline, 25 points for hits on the waterline, and 50 points for holes below the waterline.



The Axis captains who literally "took a bath" at Nationals (back row, left to right): Curt Kricke, D.W. Fluegel, David "Dirty" Haynes, Randy Kricke, Cameron Hunt, Ron Hunt, Gerald "Grasshopper" Roberts and Francis Rogowski. (Front row, left to right): Lief Goodson, Eric Noble, Wade Koehn and Will Montgomery. The contest is about fun, fellowship.

Ships also are allowed to have bilge pumps, although the exit hole is limited to1/8-inch diameter.*(See the new column, "In Harm's Way," elsewhere in this issue. — Ed.)*

The 1994 Nationals were held at H&H Ranch in Houston, with competition beginning on a hot and humid Monday. The Allied and Axis fleets have been evenly matched for the past two years, with the winning fleet being decided in the last battle of the week.

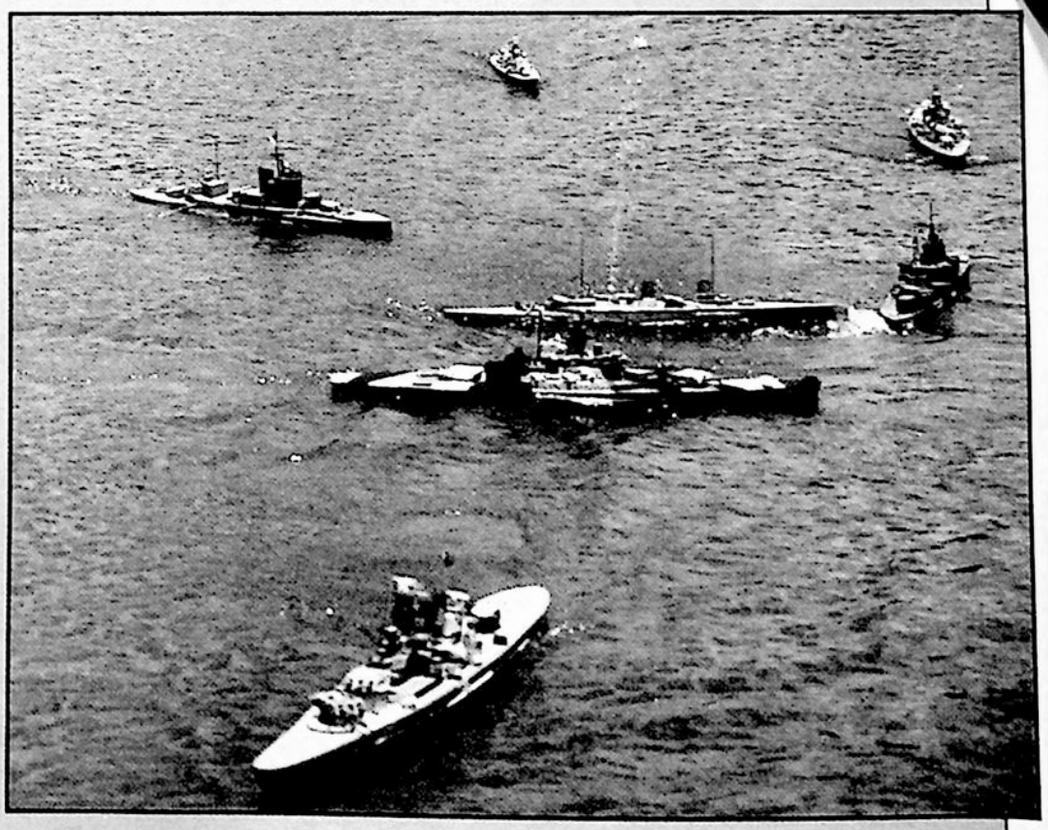
This year looked similar: 14 Allied ships to 13 Axis ships.

But 12 of the 13 Axis ships were 24-second ships (the ship's speed over a 100' line), as opposed to 7 of the 14 Allied ships. The Allied fleet had an overwhelming advantage in capital ships — battleships and battlecruisers. The Axis had a 2:1 advantage in cruisers, but usually cruisers don't play a significant role in the outcome of a battle. However, they can add to the "fog of battle" with their speed and general harassing ability.

The Allied fleet developed a plan to score a convincing victory, including a never-before-done "Strategic Victory" that involved landing combat forces at forward supply bases. While the battling lasted 5 days, I'm going to report on the first Fleet Battle, Campaign Battle and the Night Battle.

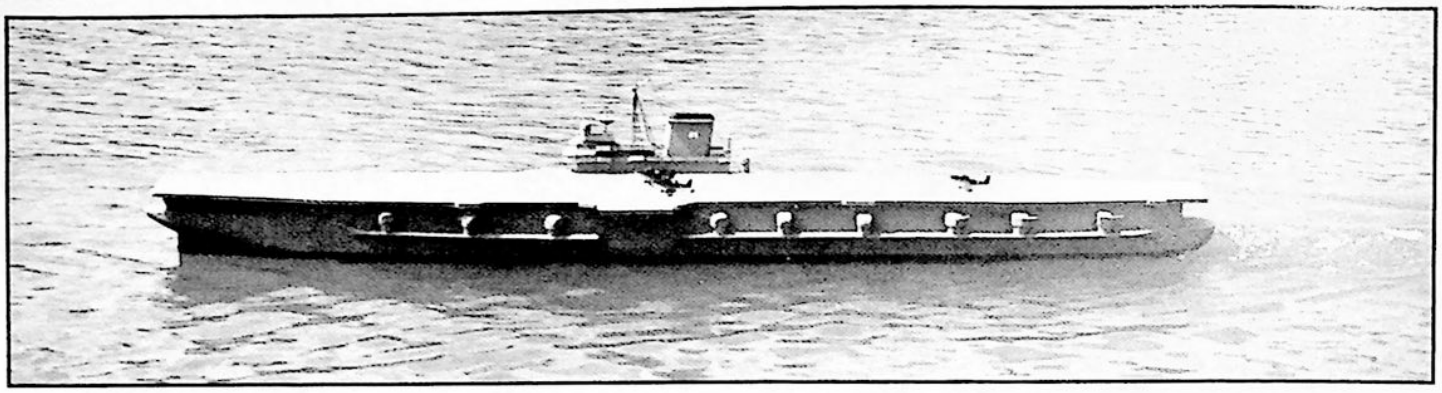
The Fleet Battle is one fleet against the other. The Campaign Battle adds convoy ships, forward and home bases, and a lot of strategy. (Forward bases are knock-down targets on the water that represent troops and supplies. They are used to replace spent ammo and repair ships.) Night Battle happens only once during the Nationals. Most ships have lights that can be turned on and off. The Night Battle is a standard fleet battle of Allied vs. Axis ships.

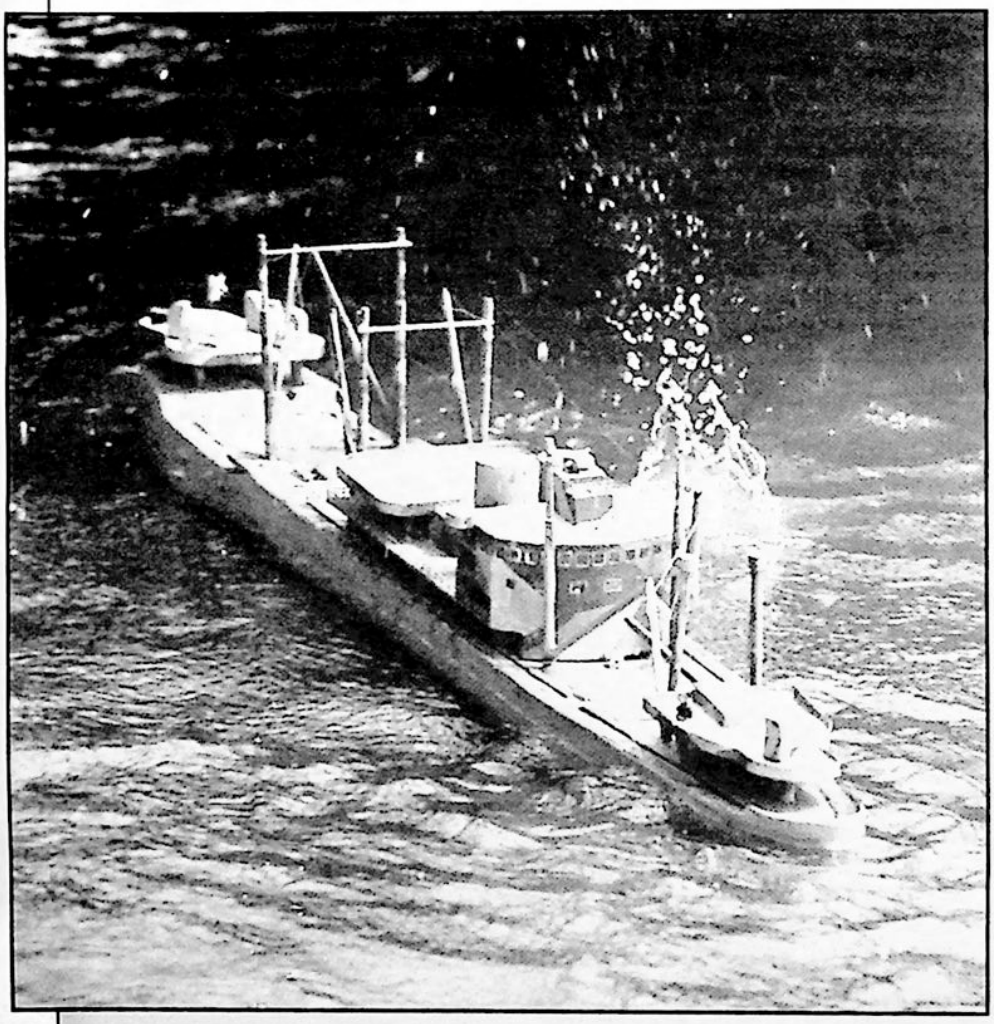
In 1994, the Allied fleet strategy was to not target any specific ship. Captains



Moltke is in the "Circle of Death," surrounded by the Queen Elizabeth in front, South Dakota on the side and Warspite behind. Moltke is pumping hard and will soon sink.

A RECAP OF THREE BATTELS GIVES A SENSE OF THIS FUN EVENT!





ABOVE: Largest ship ever to complete — at 81" long x 11" at beam is USS Midway (CV 41), seen under way through The Narrows en route from home base to forward base to protect targets representing supplies. LEFT: Death of a cargo ship. This Japanese convoy ship is settling bow-first as another Allied round hits water close by port side of doomed ship.

were paired, but were to determine their own objectives.

As the first sortie began, most Allied ships were close to The Narrows, a channel "choke point" linking two of the four large lakes.

Four battleships, 2 *Washingtons* and 2 *North Carolinas,* attacked the Japanese battleship *Mutsu* (David "Dirty" Haynes). In midlake, *DMK Lutzow* (Francis Rogowski) was sandwiched between *Queen Elizabeth* (Chris Pierce) and *Invincible* (Steve Baker) in a slugfest and hurt badly. *USS South Dakota* (Brian Craven) and *Alabama* (Don Cole) held The Narrows and pounced on *Molkle* (Lief Goodson) when she entered. *Molkle* then engaged *Washington* (Paul Broring), moving alongside and trading shot for shot with their sidemounts. *Lutzow* saw that *Molkle* was about to be surrounded and jumped by three additional Allied battleships, then ran through The Narrows to help out. *Washington* disengaged from *Molkle* and caught *Lutzow* in The Narrows with 8 to 10 well-placed rounds below the waterline.

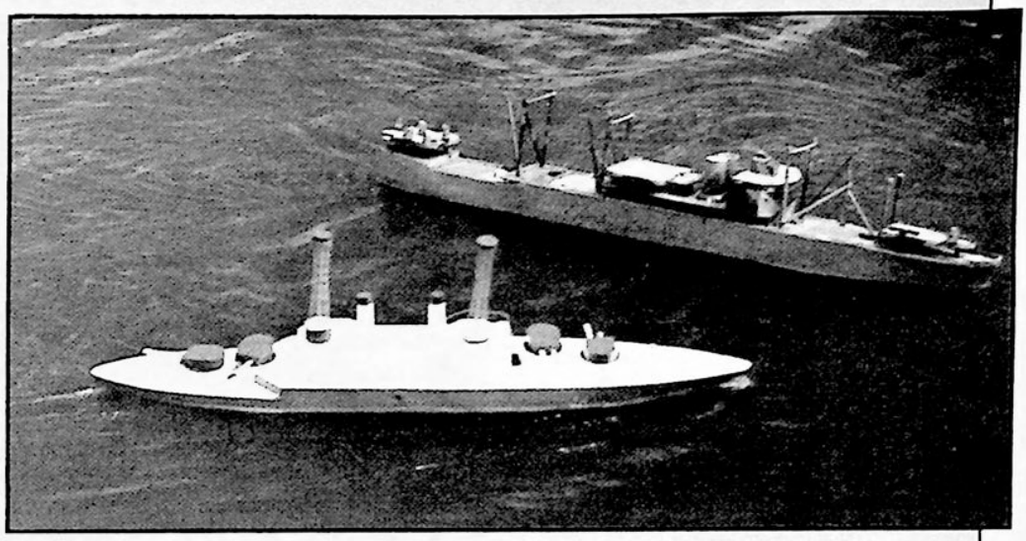
Queen Elizabeth cut off *Lutzow's* escape, but rammed her for a 200-point penalty). *Lutzow* went to shore to fix the ram damage and escaped the bloodbath.

Meanwhile, on the other side of the lake, *Warspite* (Marty Hayes), *Pennsylvania* (Bart Purvis) and *Marlborough* (Tom Jass) found a target of opportunity in the rookie *Prinz Eugen.* In 2 minutes, all 3 hit *Prinz Eugen* 11 above the waterline, 1 on the waterline and 10 below. Her captain called "abandon ship" as *Prinz Eugen* sank stern first. The battle is stopped as her captain (Cameron Hunt) wades to retrieve his ship, the first sink of the 1994 Nationals.

As battling resumed, *Molkle* called "5 minutes" (before leaving the water, a captain must call "5 minutes" and remain on the water as a target, but may not shoot even if he has ammo left). *Molkle* was chased around the narrow lake called The Slot by *South Dakota, Alabama* and *Washington* (Willard Adams). With great skippering, *Molkle* received little more damage and was safely taken off the water.

At about the same time, *Queen Elizabeth* attacked *Lutzow* and put the final holes below her waterline. *Lutzow* rolled to port, sinking close to shore. As the first sortie wound down, the Allied ships were searching for Axis targets and found none,

Michigan is on the attack against an Axis convoy ship. Note the well-placed round (holes) the Axis ship has received. Each adds points.



so they called 5.

After the first sortie, Allied captains debriefed and learned that *Mushshi* had been launched in the third lake but promptly went dead in the water. None of the Allies saw this BIG dead target. Where were the *Bismarcks*?

Sortie Two started with the Allieds around The Narrows and most of the Axis fleet in the large lake. The Allies hoped to get at Gerald "Grasshopper" Roberts' *Mushshi*. To that end, *Queen Elizabeth, Invincible* (Steve Baker), *Belfast* (Andrew Kricke) and *Washington*

(Jim Pate) laid in wait in the third lake for *Mushshi* to launch. At the last moment, *Mushshi* played sneaky and launched in The Slot. The Allied units immediately gave chase.

Nagato (Will Montgomery), *Mutsu* and *Molkle* moved into The Slot to defend their Japanese sister ship. The Allieds closed the other end of the trap by making The Narrows a hellish place for the Axis battleships. *Molkle* was cut off and engaged by *Washington* (Paul Broring) and *South Dakota*. *Molkle* called 5 and ran for open water. Just then *Bismarck* (D.W. Fluegel) finally moved into The Slot as *Washington* (Jim Pate) went out of control, slowly turning 360s to port. *Bismarck* had a free and clear shot at *Washington*, but did little or no damage.

Back at The Narrows, *Pennsylvania* and *South Dakota* found the heavily damaged *Molkle*. Concentrated firepower and *Molkle's* failing pump combined to doom this feisty little German ship. As *Molkle* slowly slipped below the water's surface, Bart and Brian gave each other the High 5.

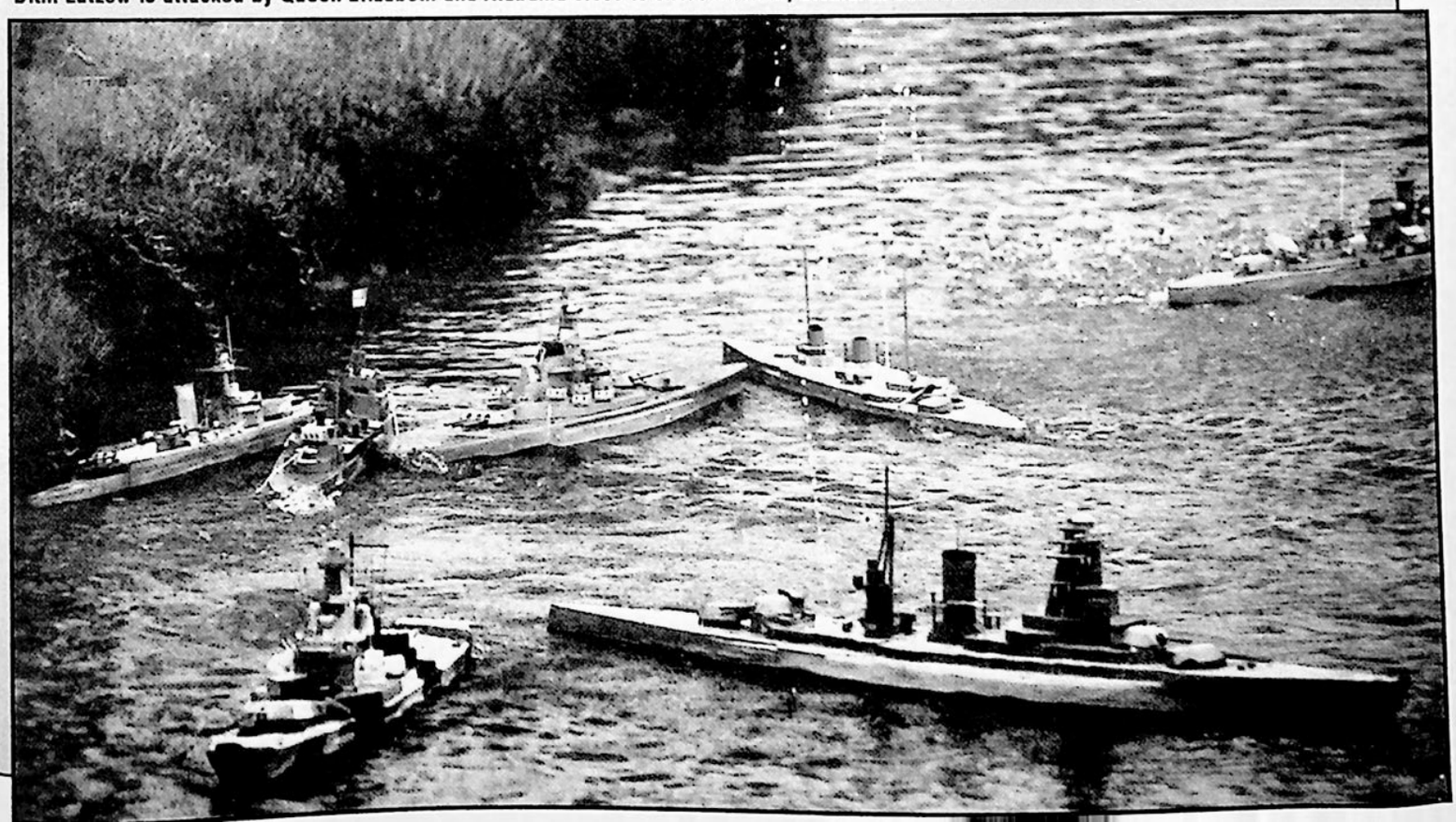
Meantime, *Mushshi's* 5-minute timer ran down and her captain streaked into the water to grab her as she was nearly decks awash. *Mushshi* escaped doom while another Axis captain was fighting for his life. *Mutsu* ran aground parallel to shore in The Slot. The BBs that are left in the Allied cannons were now concentrated on the hapless, unlucky Japanese battleship. *Queen Elizabeth* moved in and dumped round after round into the sticken battleship. *South Dakota* prop washed *Mutsu* off the sandbar and just as she started to roll over and sink, her captain touched her, thereby saving the Axis from even more devastation. Monday started with a bang and the Allies scored a major victory by a score of 4,975 points!

As the two fleets prepared for Campaign on Tuesday, both hoped for a "strategic victory." In 7 years of playing Campaign at the nationals, never before had a fleet won a strategic victory.

Fleet Admiral Jim Pate and Vice-Admiral Brian Craven (campaign admiral) had worked out the plan for Campaign over the last year. The plan was both simple and complicated. First was to stop and

continued on page 36

DKM Lutzow is attacked by Queen Elizabeth and Alabama close to shore. Moltke, Bismarck and Mutsu move in to help.



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sink the Axis convoy ships, cutting off supplies to their forward base. If done, Phase 2 of the plan — the first invasion of an opposing force's forward bases — would be possible.

As the battle began, the best battleships from each fleet cruised near the enemy home base, waiting for convoy ships to launch. Three Axis convoy ships filled with badly needed supplies were first to start the 5-minute run to their forward base. They were followed by another Axis convoy ship and immediately intercepted by *Queen Elizabeth* (Chris Pierce) and *Washington* (Jim Pate). All were quickly destroyed, sinking just short of The Slot.

Allied convoy ships began their first mission, with *Pennsylvania* and *Alabama* as escorts. This time, Axis battleships had their way, sinking the all within sight of the forward base. Both sides sent their exhausted warships to base and worked to patch their merchant ships.

The first target check passed with little notice. The forward base targets were protected by the two aircraft carriers, *USS Midway* (Brian Craven) and *IJN Hiryu* (Gerald Roberts). Meantime, two French cruisers moved in to attack the Axis forward base. *Hiryu* got between the cruisers and the knock-down targets, and came under attack. *Hiryu's* captain was caught: If he moved away from the attacking ships, the targets would be exposed to attack. If he stayed, he could be sunk by the continuous pounding.

As a good samurai, *Hiryu* stayed put. After 200 BBs from the cruisers, *Hiryu* went down with her captain.

The next convoy missions were run by the Allies and, although one more ship was lost to Axis forces, their ammunition was exhausted and the remaining convoy ships began to build up troops and supplies. The Axis merchant marine rebounded, however, launching 3 more convoy ships. All were sunk by the concentrated firepower of *Invincible* and *Michigan*.

While this was happening, the second part of the Allied plan was set into motion. *Pennsylvania* moved in on the Axis targets and with one shot removed their sole defending troop battalion, leaving their forward base ripe for invasion. Two French cruisers carrying commando battalions and one convoy ship set sail from the Allied forward base, moving to the Axis forward base for the invasion. For the first time in the club's history, a successful invasion had taken place!

The Axis fleet, feeling more desperate, attacked both targets. For 20 minutes the battling in and around the forward bases (both now Allied) was ferocious. After the second target check, the Axis sent out one more desperate convoy mission, but it was quickly dispatched by Allied forces. The invaded base was now protected by *Pennsylvania* and *South Dakota*, and being attacked by *Bismarck* and *Lutzow*. The original Allied base was protected by the French cruisers and attacked by *Scharnhorst*, *Bismarck* and *Admiral Hipper*. They took a heavy toll on Allied supplies, but all their efforts were for naught as the Allied ships (4 at a time) kept the supplies coming at a high rate of speed.

At the third target check, the Campaign battle was declared over because the Allieds held the Axis forward base for two target checks — a strategic victory, the first ever at a Nationals! With 9,300 points won in the strategic victory, the Allied fleet entered the night battle leading by 27,800 points.

It was a beautiful, moonlit, tropical (hot and humid) night, and the sea was dead calm, without a ripple. Last year's night battle was won by the Axis fleet, one of the few times that the Allied fleet lost at night.

As war was called, the fleets were in much the same places as during the other battles: Allies near The Narrows and Axis ships on the far side of the big lake. *Sverige* (James Foster) moved to the front of the Allied fleet and set off a strobe light to wreck the night vision of the Axis captains. Half the Allied fleet moved one way around the lake, while the other half went the opposite direction. The Allied fleet had trapped the Axis fleet in a crossfire.

Just then the Japanese navy sent out a decoy ship and set it on fire by radio control. The Allies pounced on it before realizing it was a decoy. Then the battle dissolved into a cut-and-thrust melee, each ship acting independently, as in naval warfare 300 years before.

Close to The Narrows, *Lutzow* (Paul Fluegel) ran aground. *Washington* (Paul Broring) snapped on his powerful floodlight (a video camera light) and opened fire. *Washington* (Paul and Willard) with the help of *Warspite* made short work of *Lutzow* by putting 105 holes above, 8 on, 18 below. *Lutzow* rolled to starboard and sank into the black water.

On the other side of the lake, *Miuzuki* (Gerald Roberts) lit up *Queen Elizabeth* and sent shell after shell into her. But she had now betrayed her position and was lit up by *South Dakota* and *Invincible*. Engaged from every point of the compass, *Miuzuki* fought for her very life. She was to be the final catastrophe to the Axis fleet.

With targets widely scattered, most captains sought to survive their 5 minutes — no one wanted a night swim! The Allied fleet won by 4,230 points.

Nationals as always was great fun and everyone had a great time. Most people get into the hobby for the scale ships or the competition, but stay because of the people. The 1995 Nats are scheduled for July in Springfield, Missouri. •

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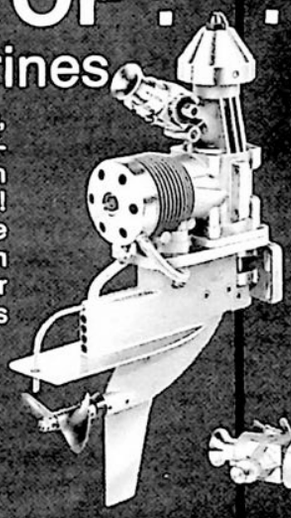

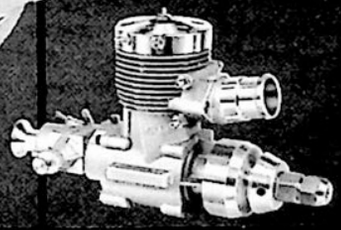

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- K&B 13cc (.82)

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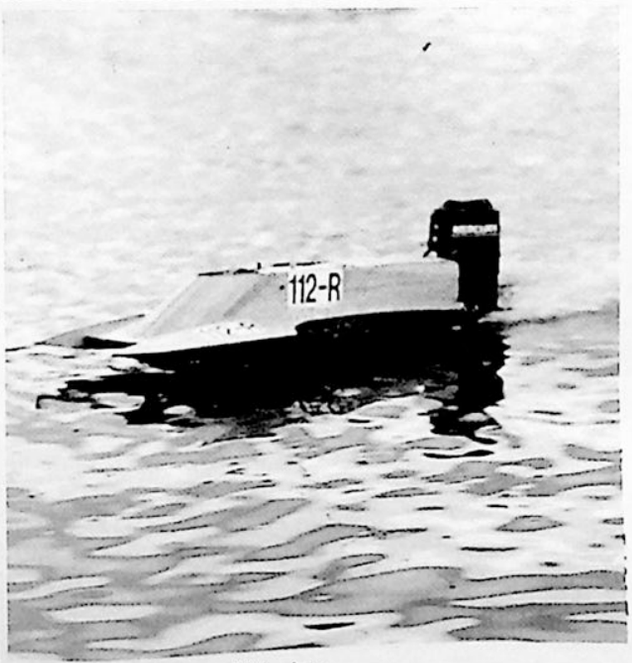

Photo by Dave Worley

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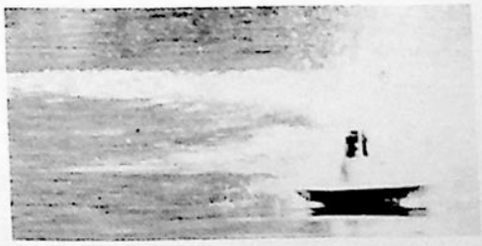

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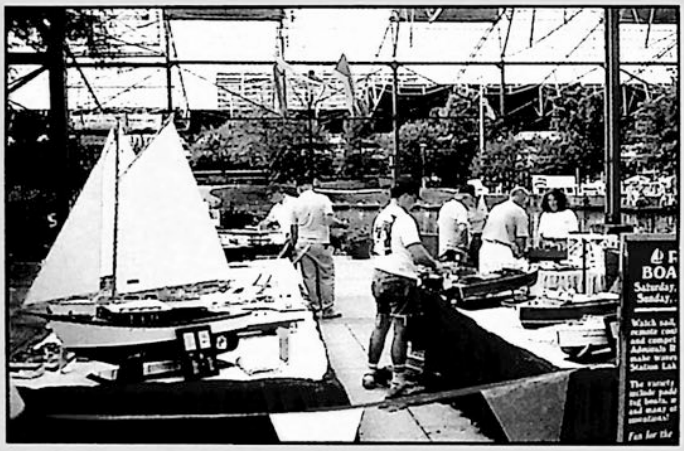


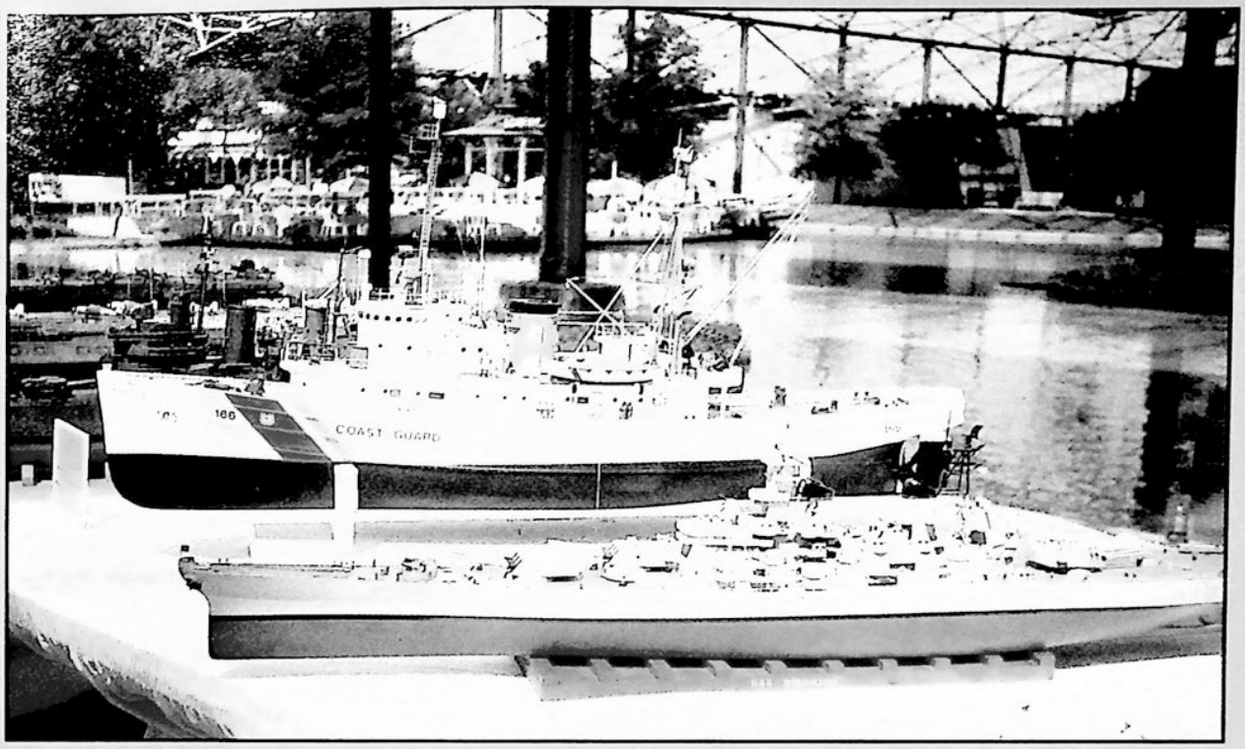
ABOVE LEFT: The covered Union Station lake brings crowds early on the first morning. Spectators can view all types of craft up close. ABOVE: Tug boat row gives a clear indication of the growing popularity of push/tow watercraft. LEFT: Miniature electric and race boats are lined up for judging and display on Day 1. Judges reported choices were difficult — true

The Admirals RC Club Shows Thousands All Types Of RC Boats During Annual Two-Day Festival

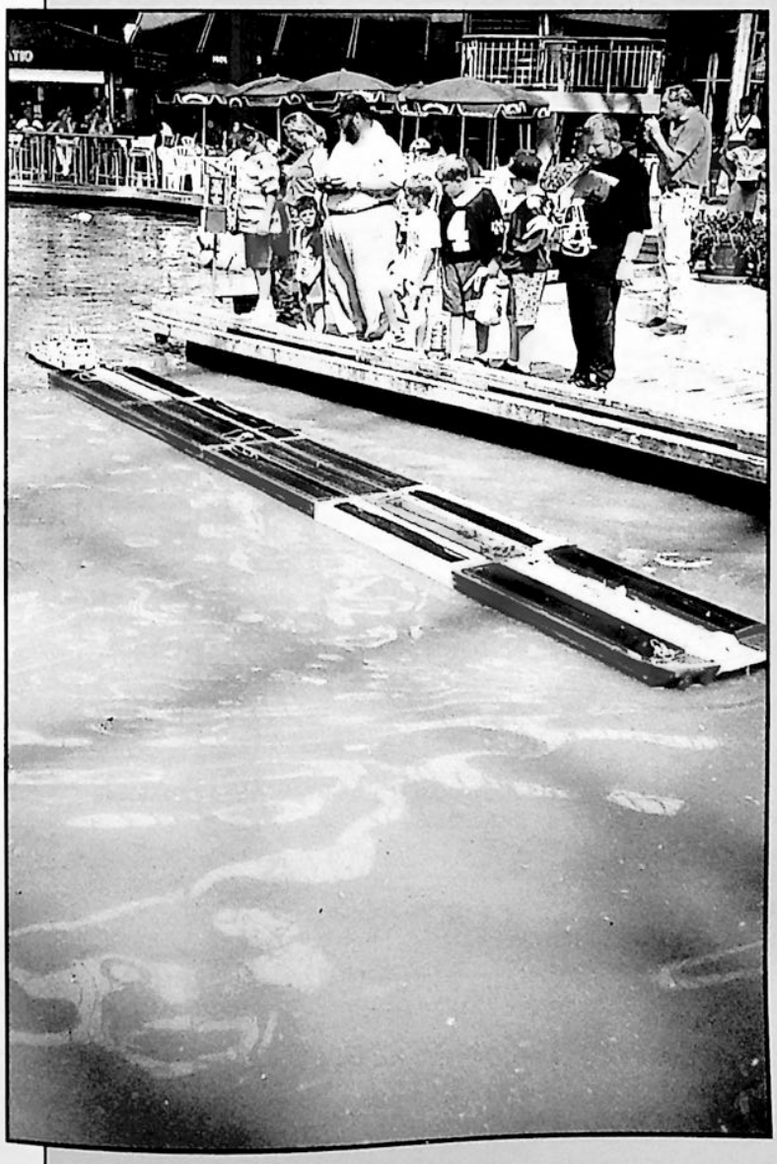
WHEN OLD SALTS and young river rats of the St. Louis Admirals RC Boat Club decide to gather in the Midwest for a 2-day RC meet, it is held in a rather unique part of downtown St. Louis: Union Station.

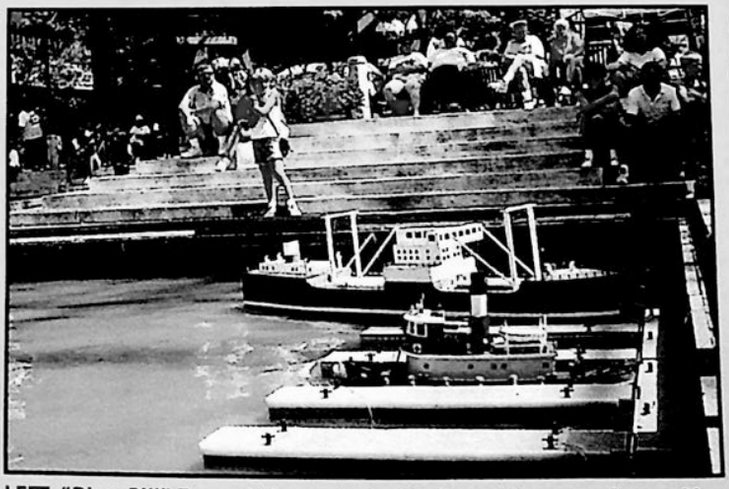
In 1994, the Admirals held sail, electric and steam-powered model ship regattas, assisted by guest hosts, the St. Louis Thunder Boaters. Registered guests and members could choose between judged or non-judged runs. There was a Fun Run on the second day, with awards and prizes presented. This is an event for everyone, meaning maximum RC fun was the Number One rule and no nit-picking in the judged events.

Union Station, known simply as "The Station," was built in 1890 as the world's largest railway station. It was later converted to a multi-

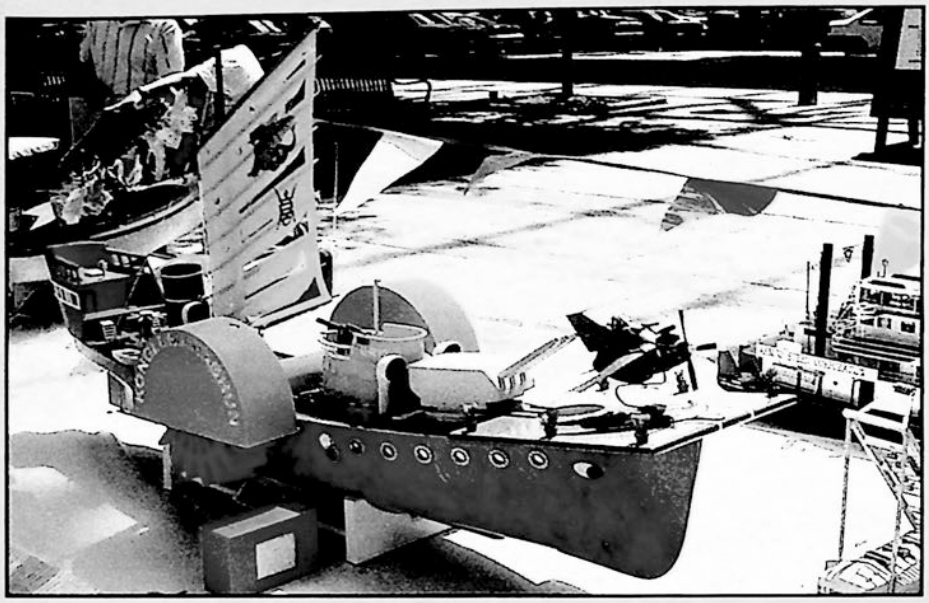


Battleship Missouri, built by Jim Merciel, took Admiral's Award" and earned respect of entire modeling group. Coast Guard deep sea tug, Mobile Bay, was scratch-built by Glen Hensley, also of the Admiral's club. Plenty of bells and whistles on both of these craft.





LEFT: "River Bill" Zumwalt demonstrates towing on the upper rivers with his 26'-long long barge and tow boat. He scratch-built the lot and this tow would be equivalent of 1/4-mile tow on upper rivers. His Thomas K is controled by dual engines and 6 rudders. TOP: Sara Midkiff, youngest member of Admiral's Club, prepares to get under way with mini-tug, Rookie. ABOVE: Giant unpowered freighter and tug, Atlas, await start of towing events. Freighter is 8' long and has 200 lb. displacement weight.



ABOVE LEFT: Konglomarashun is Bob Chapman's funny and unusual whatchamacallit. ABOVE: Closeup of two of the finely detailed commercial fishing boats. LEFT: Just 7 of the 9 vessels on Tow Boat Row give a sense of why event organizers had to divide category.

use complex that today includes a railway museum, shopping mall, business offices and a half-acre lake. Nearby are many things to see and do, fine hotels and restaurants. Over 25,000 people are attracted to this downtown landmark on weekends. It's a real opportunity for the Admirals to expose RC boating to the general public.

Bordered by concrete sides and wooden decking, the lake is an excellent spot to stage model boating events. Some 65 boats were registered by 43 members and guests from clubs like Watts Wake, Northwest Commodores, and the Springfield Scale Ship Sailing Society, better-known as the SSSSS guys, from Missouri, Illinois, Indiana, Ohio, Kentucky and even Michigan.

A new event was addedin 1994. "All Scratch" limited the builder to scratch-built hulls and structures, with only small fittings allowed to be purchased. If the fittings were scratch-built, the models scored even higher.

The Work Boats Class was divided, I believe for the first time, into tugs or tow boats and according to the type of water they worked, "brown" or "ocean." This may mean the tow boat "has arrived"!

The first day of the meet is mainly judged categories where each pilot is required to steer his model through a course of maneuvers that includes docking. The Thunder Boaters also raced their exciting, noisy gas boats on the small lake, although at reduced speeds. The crowds really cheered them on through spills and the usual crashes. Several races, are staged each day by these "Rooster Tailers, "along with the fast electric boats.

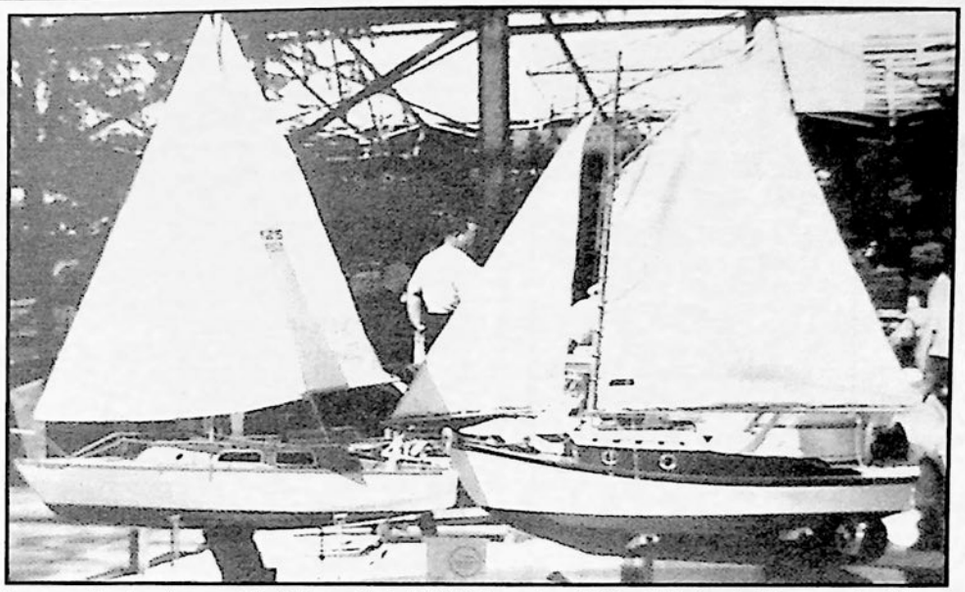
Events began at 9 a.m. with the winds light both days. The great staff of Union Station had the docks ready, static display tables set up and PA system warmed up for the announcers. The Pleasure and Sailboater's had the first run. This didn't include the various barges supplied for the towing events, or the Admirals' 8' long, 200 lb. displacement freighter, the 5.5. *Hardly Able.*

This aptly named ship is unpowered and used in several categories where it's towed or pushed. It's even used as a target.

Kurt Schrivener had his own naval fleet, this year including 2 escort carriers and a light cruiser. They joined Jim Merciel's battleship *Missouri* , carriers *USS Chenango* and *Croatan*, cruiser *USS Helena,* and several of the Admirals' fleet of PT boats, in patrolling the lake for enemy ships.

An emergency distress call to the announcer reported *Harldly Able* under fire, by a small Jap destroyer *Matakaze*, commanded by Norman Kalaskie of the Admirals The crowd was wowed by the battle, which made short work of the enemy.

Then Glen Hensley and his deep sea Coast Guard tug, *Mobile Bay*, came out and assisted the freighter back to port. The



Cameron Morrison's super-detailed, scratch-built 26' Balboa sloop (left) took 1st place in Pleasure, plus Skipper's Choice and Best of Show. Beside it is Poco Dinero, a scratch-built entry by Tom O'Dell that took 3d place in the Pleasure category. Plans came from an old Popular Mechanics issue, Tom reported.

crowds loved it.

Admirals member Tom O'Dell had his Hartman Fiberglass kit tug ,*Atlas*, and challenged anyone to a tug-o-war. Kurt Van Dahm of the Watts Wake group responded with his new scratch-built truckable tow boat, *Mary V.* Somehow, Tom managed to install an EMD V-12 cylinder diesel engine into his tug. Kurt got his stern jerked under!

Once he'd shown Kurt the inside of his tug, Kurt used his *Irishman* tug's fire monitor to cool off Tom's enthusiasm. All in good fun, this was in keeping with the ne rule of grudge matches: have fun and wait till next year!

The second day is more relaxing Beginners and masters in model boat building can "rub railings" and talk of events past and future. This is RC "Fun Run" day, where only the awards ceremony halts the pleasure boating for an hour. Models like Bob Chapman's cabin cruiser *Unforgettable* made the day just that. His unusual *Konglumarashun* — a battleship/aircraft carrier (with a weird plane that flapped its wings)/submarine/pirate ship/sidewheeler with sailing masts — showed what too much retirement can do!

Jim Jones of Watts Wake had his beautiful *Kayot* pontoon sailing the lake with its realistic outboard motor powered by cells hidden inside the pontoons, and fully carpeted and decked out.

Bill Hartman of Watts Wake had his pleasure steamer, *Patricia*, out puffing her way around the harbor, delighting everyone with smoke rolling from her stack. Doug Allgeier had his pocket-sized sidewheeler *Claremont* running alongside the Admirals' youngest member, Sara Midkiff's own mini tug *Rookie* and everyone marveled at her ability. Sara is the daughter of John Midkiff, who builds fast electrics and PT boats.

Bob Olsen had his tug, *Kathy Joe*, working as the recovery barge during the first day's events. With the miniature vessels showing their realism in scale operations, Luther Disher tied his new *Lil Toot* tug from Hartman Fiberglass to the *Hardly Able* and proceeded to pull it through the course, amazing everyone with its power and his piloting skill. It weighs in at just about 2 lbs. wet, reported Luther, who used the lil tug to dock the huge ship, too.

Towing demonstrations were popular, too. Joe E. Brown of Kentucky brought his scratch-built sternwheeler tow boat, *George M. Verity*. He gave everyone a glimpse into history as the steamboat pushed nine loaded hopper barges lashed to her bow.,

Ron Clark and Bernard Kain arrived with new models. Ron's *Lake Charles*, scratch-built from Fryant plans, was seen piloting tows of 9 barges and assisting *Thomas K* in several tight maneuvers, piloted by ol' "River Bill" Zumwalt.

The whole idea for staging events is promotion and bringing new membership to clubs. This helps to enlarge the whole industry.

What's on for 1995? Perhaps some new competition events. How about steamboat racing?

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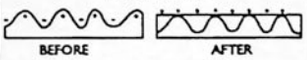

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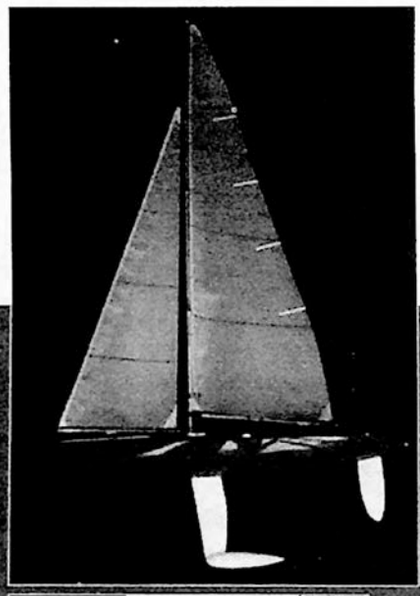

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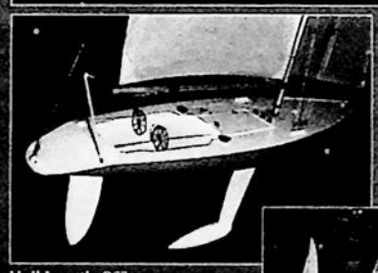

Hull Length: 36"
Total Rigged Height: 62"

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AGGRESSOR *continued from page 9*

with a dab of CA glue.

6) The foam flotation tube conflicts with the coolant water exit line at the hull fitting. Rather than risk crimping the water line and restricting the water flow, I cut the foam tube at that point.

If you considered yourself a novice when you started building the Prather Aggressor II, then I declare you graduated to the next level. Now let's go out and put it through its paces.

Fresh in my mind while tooling down to the harbor was the promotional video produced by Prather Products, featuring the Aggressor II and the Fun Cruiser. In it, we are guests on Terry's speedboat, cruising the Colorado River, observing the Aggressor II in pursuit. Occasionally panning to the boat's speedometer, we note our speed steadily increasing toward 50 mph. Every increase in speed is matched by the Aggressor II. It tries to pass us, first one side, then the other, crossing our wake. I find myself holding my breath, expecting to witness a fatal loss of control. Instead, the Aggressor II drops the hammer, pulling up alongside, and as if to thumb its nose at us, just sits on our beam. We're going 50 mph!

Oh no, here comes some choppy water. It starts skipping, each hop becoming more airborne. Then it happens. The Aggressor II performs a longitudinal, 360-degree roll and lands back on its hull without loss of control or speed! It has to be seen to be believed.

Okay, we're here. Conditions are good. A light breeze disturbs the surface.

I had pre-run the motor at home, to "loosen" the piston a bit and set the needle valve. K&B recommends running for 10 to 15 minutes with a slightly rich needle valve setting as a preliminary break-in.

A quick pop with the engine starter and it fires. I have a little trouble keeping it lit at idle, so I adjust the needle down a partial turn. The first toss into the water and it stalls. I brought along my tennis ball on the end of a spinning reel, so retrieval is simple. This time I tell my trigger person, daughter Kiara, to give it some throttle as I toss.

The Aggressor II is successfully on its way and, she won't give me the controls. Okay, have at it. I go for my camera and start firing.

The engine sounds a little "fat." After about five minutes the boat slows to a stop with the engine still running. With no movement there is no water flow, hence no cooling. I become a little concerned when it won't stall at idle, so I dial some back trigger into the Magnum Jr. and achieve what I normally don't desire. Thank goodness for my ball on a string.

I discover that the set screws on the drive dog have loosened. Let that be a

lesson, I mutter to myself.

We're quickly back into the water and with a little tweak on the needle, the engine sounds cleaner. Top speed is noticeably higher and the Aggressor II is liking it.

I hate to overuse the term sleek, but it fits the Aggressor II so well as it's running down the straightaway with no extraneous equipment protruding from the cockpit. Its hull is throwing little wake, which indicates efficient design, proper lift and light surface contact. A thin shaft of prop turbulence is the only indication that it passed through here as if the Aggressor II is actually a stealth arrow running straight and true to its mark. Something that Robin Hood would envy.

Prather Products has always encouraged and welcomed novices with descriptions in their promotional literature about how easy their models are to build. Given the thorough step-by-step photo instruction manuals included with each one, this is true. Because of the kit form of their entire product line (until recently), a contrary image has been fostered . Considering their reputation as a producer of high-quality performance RC boat kits, chances are that the Aggressor II will be "eyed" only by experienced racers wishing to fill out their quivers. This would be unfortunate, because it also is a sport boat and in its almost ready-to-run format, ideal even for the novice. Paired with the RR Fun Cruiser, the ARR Aggressor II is the signal of change for Prather Products.

A change of image can be a good thing. If you can capture the mind and heart of the novice with a fun and practical model and provide him with a product with which he can grow in experience and ability, to the potential of a national championship, then you are cultivating a whole new clientele. Prather Products has been a leader in the performance sector of the RC model boating industry since their inception almost 25 years ago and it seems that they are on the path to further broaden their appeal. •

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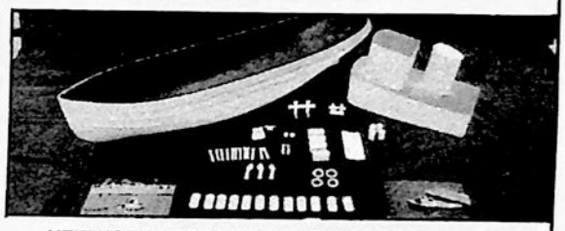

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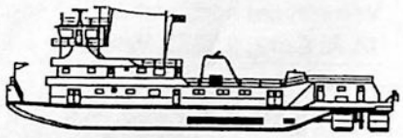

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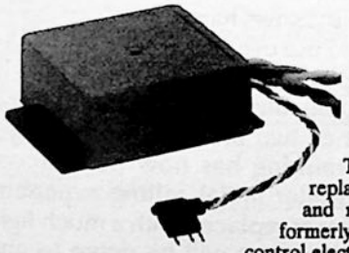

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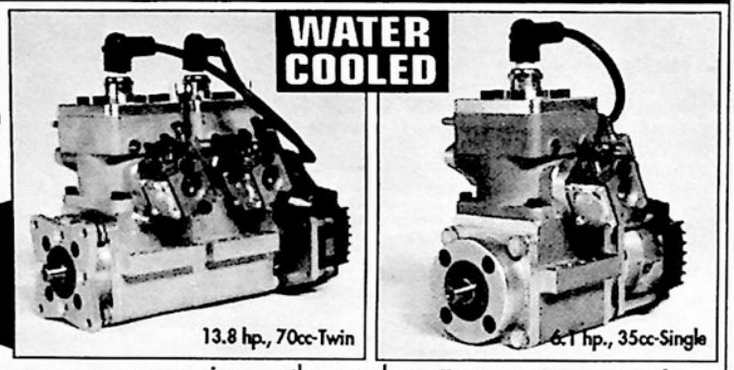

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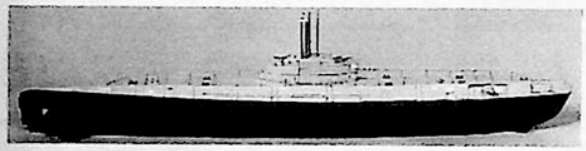

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STRICTLY SAIL *continued from page 24*

1-1/2" wide blank. By crossing the grains it resists warping. The leading and trailing edges were built up using spruce. Only the maple core goes through the hull, to minimize the size of the hole through the hull and to allow the hole to be rectangular so that a minimum amount of structure would be required to hold it firmly. The fin runs nearly up to the underside of the deck where it fits between two plywood tabs that are epoxied to the kingplank and a half bulkhead (See Figure 1). It works out to be nicely interlocking and strong. A 3/16" bolt through brass-tubing-bushed holes in the tabs and fin holds it all in place, and yet allows for changing if required.

The deeper hull draft of this design over a typical semi-circular hull section hull provides for about a 5% deeper keel. This is because the U.S. One-Meter rule measures maximum keel depth from the bottom of the hull. Know and work to the rule, I say.

The sailplan is shown in Figure 4. The small print says that main luff is 55", main foot - 12.5"; jib luff is 47.6", jib luff perpendicular is 10.5". Main leech roach is 2.5" and jib leech roach is 1.5". *(The pattern produced by using 2 different materials is interesting, but doesn't do a lot to help the skipper optimize sail shape. - RAC)*

The boat was completed at 10:30 a.m. on a club race day an hour and a half before the first race at noon. *Dr. John* hit the water for the first time only 10 minutes before the first race. Six races later it had won 4 even though plagued with too little rudder throw, some trim problems, a serious leak somewhere, and no time to get used to the boat's handling. I think it's a keeper.

I like the overall appearance of the boat on the water. The topsides and deck are nicely proportioned. The boat accelerates well and moves along smartly with little wake. I got what I wanted. I have proven, to myself at least, that it is possible to build a handsome boat that can race competitively.

The shadows have been given to Tom Houle to use over the winter, and several sets of plans are in circulation in our club. We'll probably see a few siblings and a variant or two on the water next year. Some refitting has now been accomplished after initial sailing experience. Rudder was replaced with a much lighter blade. The boat will be down to about 7.5 lbs to start the 1995 season.

Many thanks to Fred for his thought-provoking contribution. Contact him directly at the address above. Comments as well as your contributions should be sent to: Rod Carr, 3011 - 177th Ave. NE, Redmond, WA 98052. •

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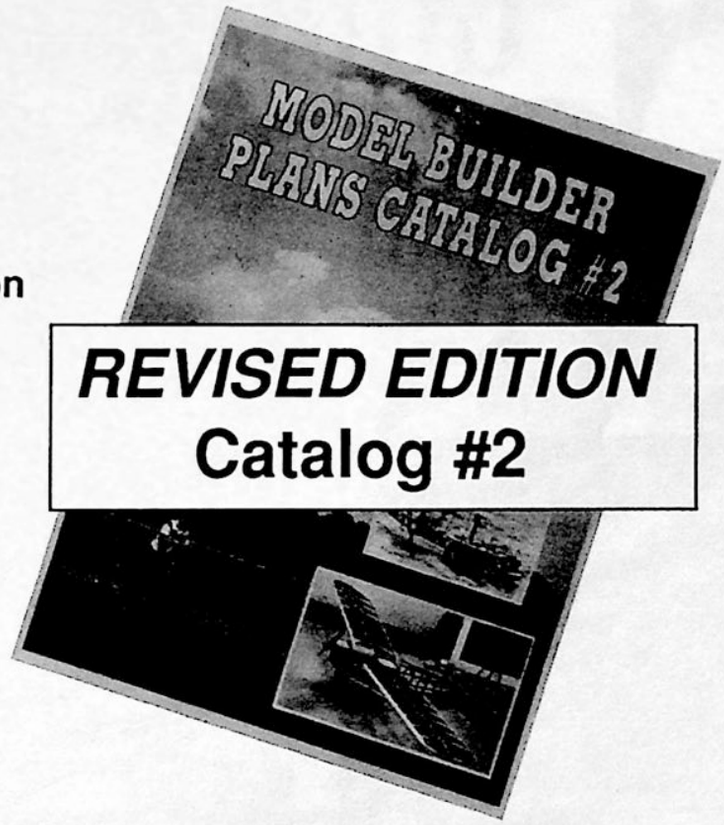

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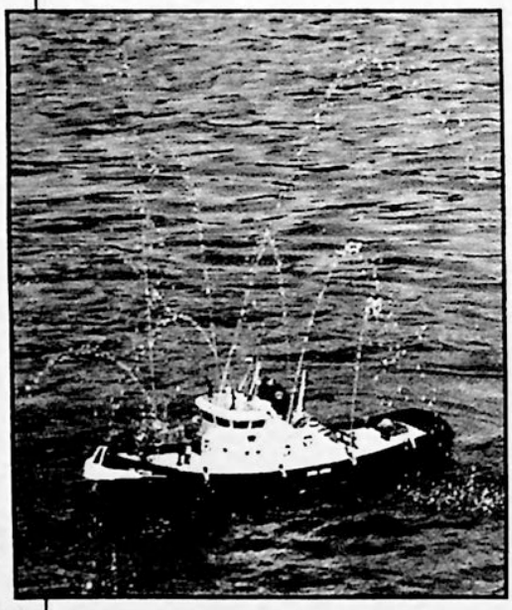
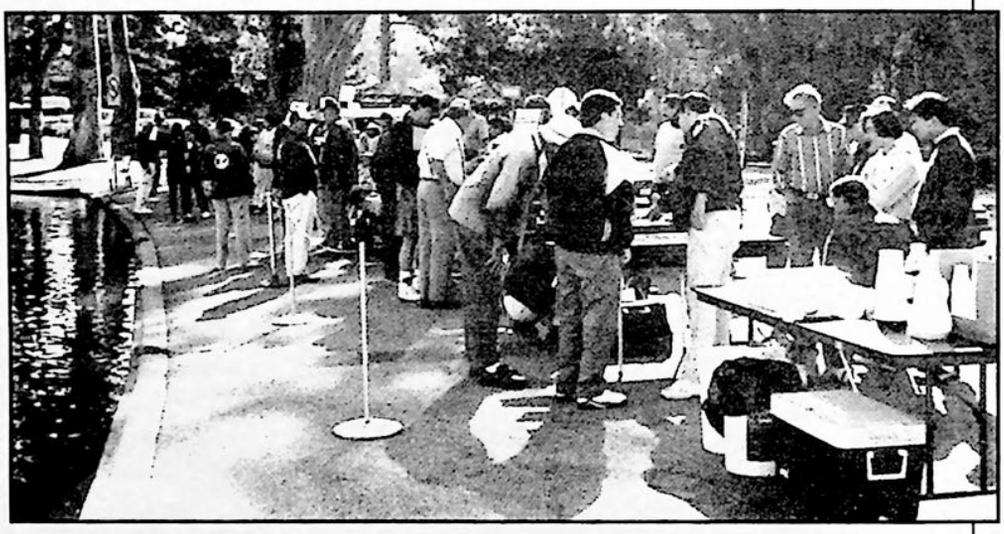
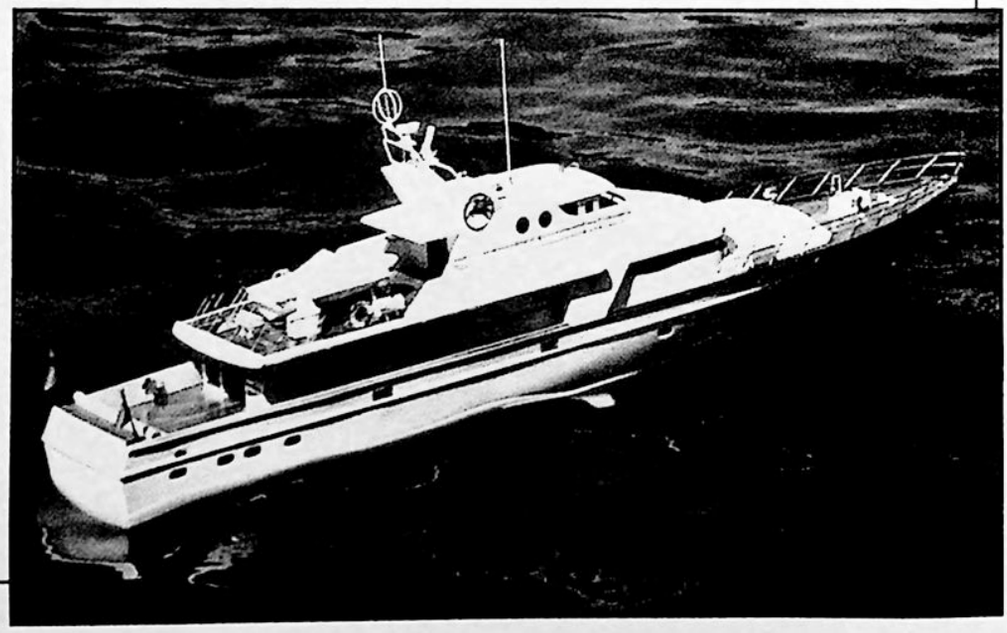
THE 17th Annual Golden Gate Scale Concours

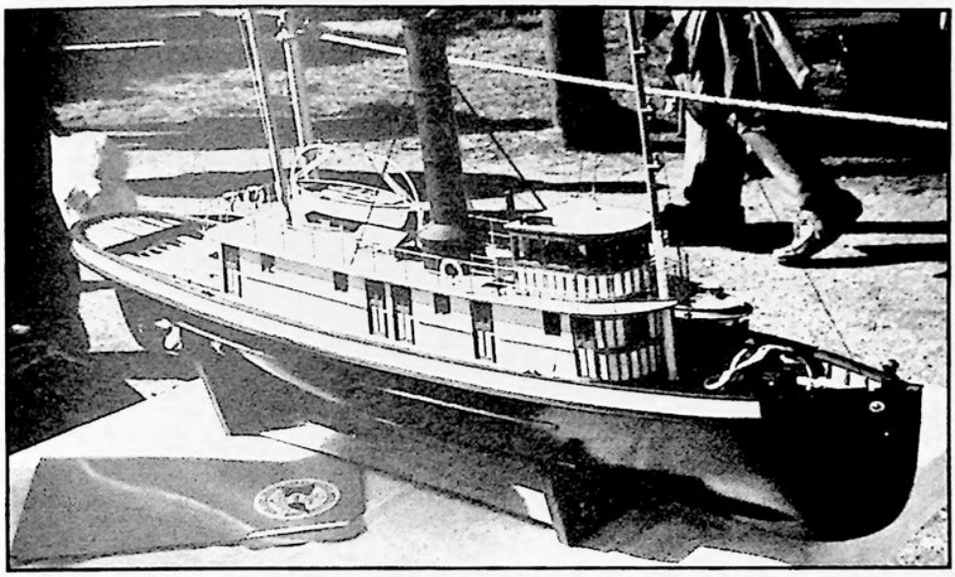
BY KURT A. GREINER

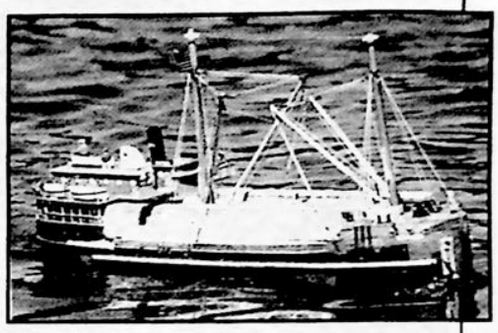




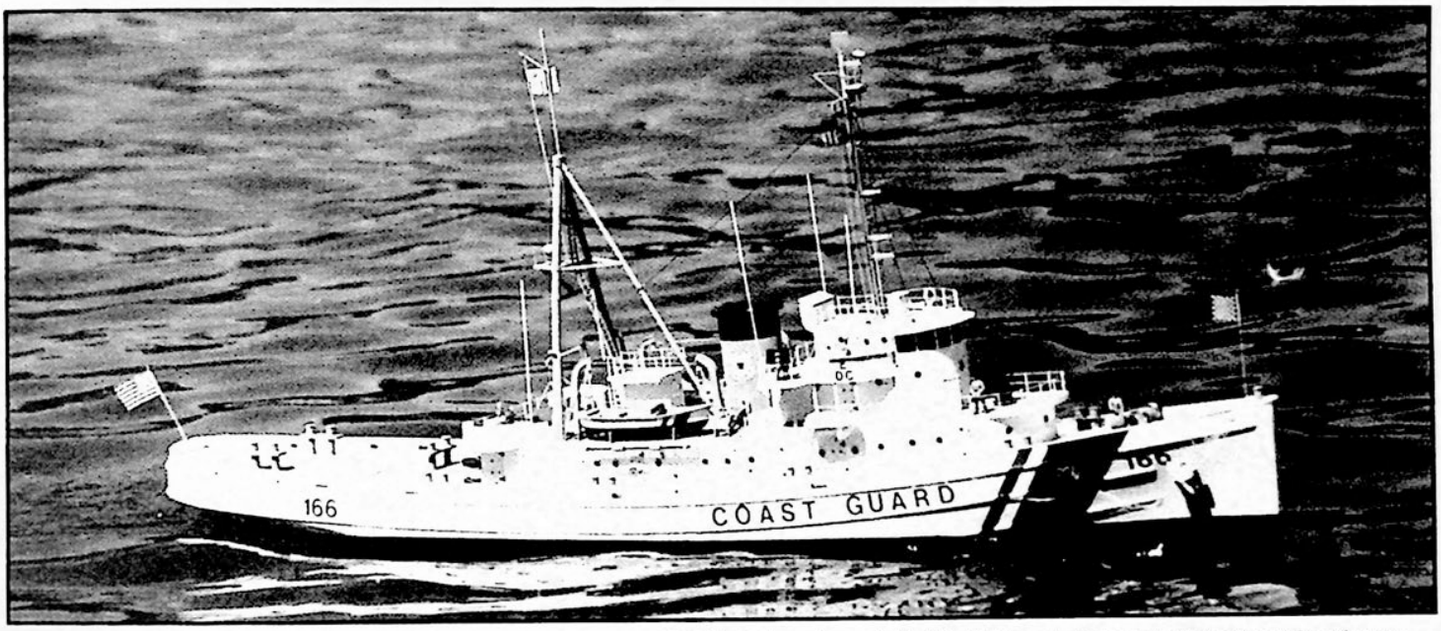


■ ABOVE: Lil Pyro, a colorful (and wet!) entry from Tony Abela. ■ ABOVE RIGHT: The early morning scene at the registration table, where the participants line up to receive their entry packets. Spreckel's lake is a fine model boat facility. ■ RIGHT: This nicely built model of the yacht Pegasus III, from the Graupner kit, was crafted by Jeff Ferguson.





■ LEFT: The Vigilant, a nicely done tug by Eric Enstrom, won third place in the tug category for its builder. ■ ABOVE: Best of Show went to this model of the lumber boat Wapama. Built by club member John Paul, she was modeled after a locally preserved vessel.



■ ABOVE: Built on Dynamic Models' 1/48 scale fleet tug hull, the Coast Guard cutter USCG Tamaroa was brought by its builder, Steve Cowdin, from the Sacramento area.

A close up view of Steve's Tamaroa, showing the nice paintwork and crisp details of this fine model.

Another of Tony's entries, this fine little tug handled very nicely.

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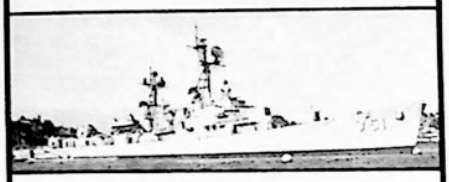

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The 17th Annual Golden Gate Scale Concours

Once each year, the San Francisco Model Yacht Club holds a scale regatta at its facility on Spreckels Lake in Golden Gate Park. This event is known both for high quality entries and unusual levels of innovation by the participants. Like most contests, it also provides a chance to communicate with fellow modelers, view new ideas, revive the desire to finish that lingering project, or perhaps start a new, more ambitious creation.

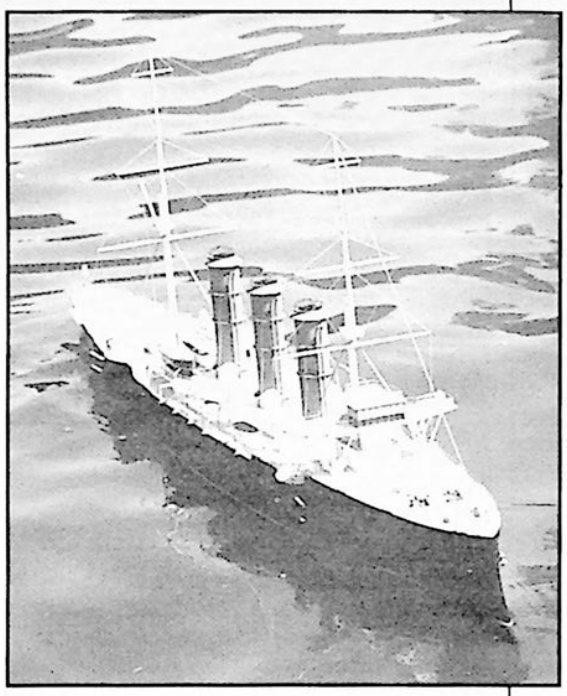
The San Francisco Model Yacht Club members are fine hosts who provide a well-organized and friendly environment for the meet. With over 40 entries to be judged, on land for scale appearance and on the lake for operational points, the event proceeded smoothly, starting about 10 a.m. and ending about 2:30 p.m.

One of the hallmarks of this competition is a strong novelty category, where the inventiveness of entries is always remarkable. Leslie Regier, who last year walked off with the Best of Show award for an immaculate model of a Coast Guard Patrol Boat, took home a first place with her model of a floating train. Yes, a train! Balanced on floats so the wheels just touched the water, this six-car train may be the only one capable of omnidirectional operation. Powered by a "z" drive in the locomotive, and articulated for realistic (?!) operation, this entry caused a lot of comment chugging along — on the lake.

No less innovative was a large model of a Viking boat, built by Einer Jensen, which took second place novelty, as well as Modeler's Choice. Named *Ormen den Lange*, she was quite a sight out on the lake with her operating banks of oars propelling her in a realistic manner. Einer has chosen an unusual engine plant for this model — a cordless drill. This provided a powerful and reliable drive for the paddle mechanism, and renewing the batteries was as easy as slipping out one battery pack and inserting another. Rounding out the Novelty Class was an interesting freelance tour boat designed by Steve Backman — built entirely of toothpicks.

The Military Class was won by Steve Cowdin, with a fine model of a Coast Guard cutter built on Dynamic Models' 1:48 scale ATF tug hull. A very attractive ship in her Coast Guard livery.

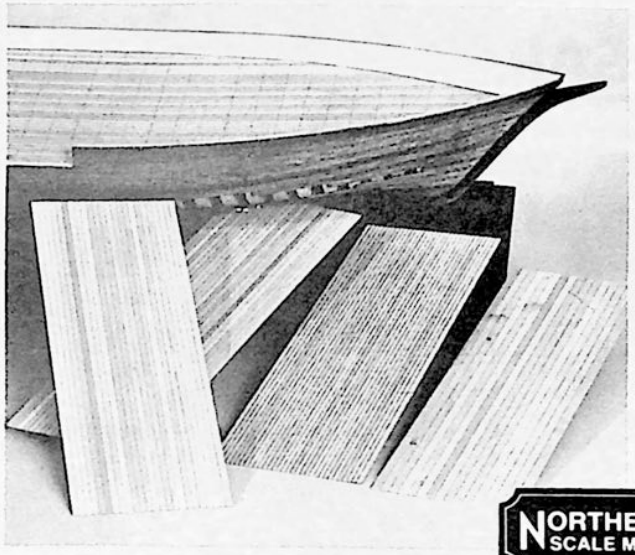
An interesting entry was Malcolm McKay's *HMS Kent*, from English Plans. This WWI era armored cruiser was crisply done, and featured an different way of approaching the problem of the numerous portholes present on these ships. Malcolm had custom dry transfers made of the ports, by a graphics company in San Francisco. The multi-color tranfers make a credible representation of both port and drip rings, and are easy to apply. Evidently the process has been around for some time; if interested you may wish to speak to your local art supply or graphics art store. The *HMS Kent* won Best of Show, Static, for Malcolm, who also had a nice model of the liner *Normandie*.



Alternate view of HMS Kent.

Best of Show, Operational, went to John Paul for his model of a local vessel, the lumber boat *Wapama*. Preserved on a barge in San Francisco Bay, this ship carried lumber up and down the west coast until turned over to the local maritime museum. John's model, with its natural finish, was an eye catcher.

With the award of prizes and trophies the regatta drew to a close. This enjoyable event draws modelers from all over the West Coast, this year from as far away as Washington state. For 1995, there is talk of holding the contest earlier in the year. If you are interested, you may wish to write to the club at 450 Taraval St., Suite 235 San Francisco, CA 94116, to get up-to-date information. Hope to see you there! •



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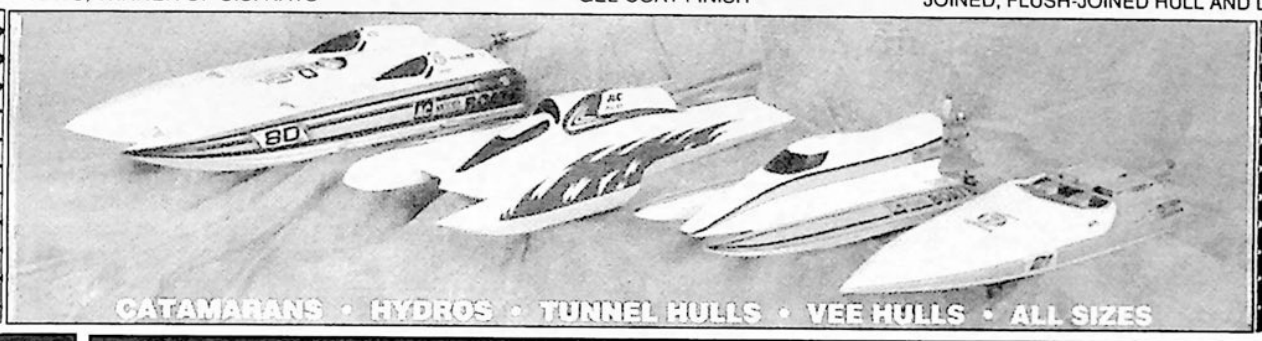

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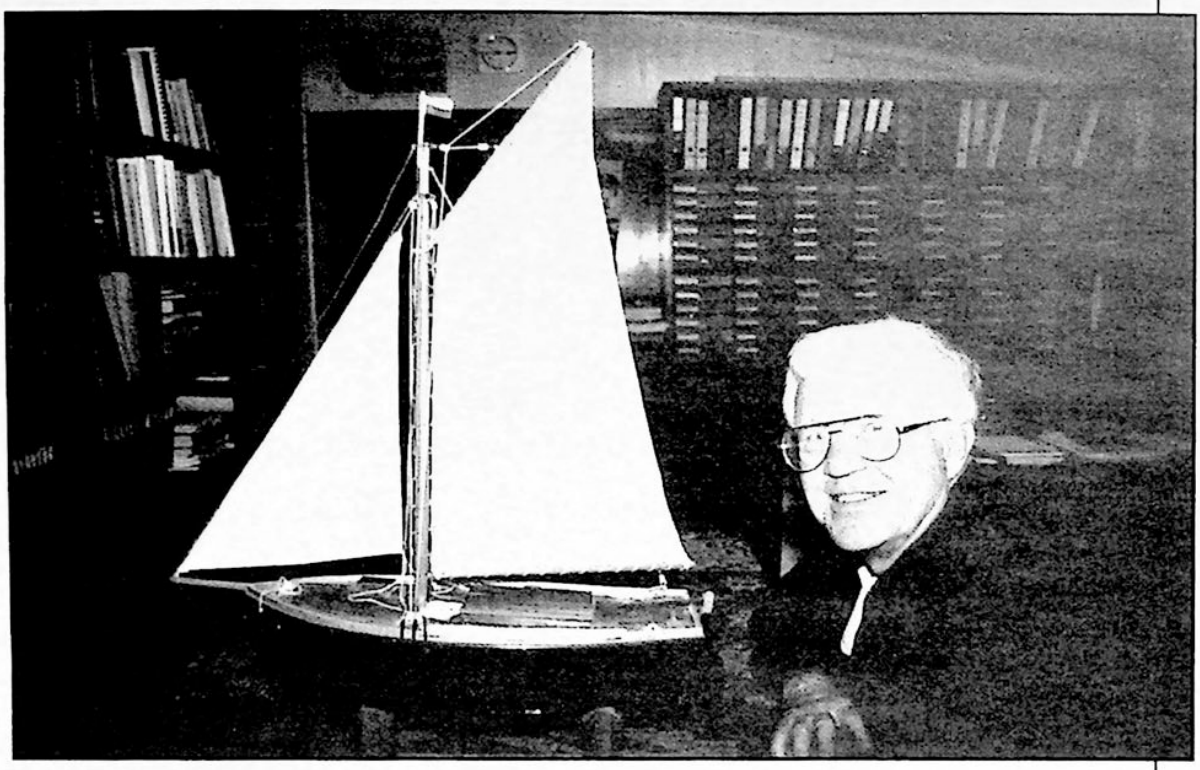


Knick Pyles and the 1:20 scale model of the lancha chilote in the office of the late Dr. Jurgen Winter at the Centro de Investigaciones Maritimas, Universidad Austral de Chile, Valdivia, Chile, September 1994.

THE LANCHA CHILOTA OF SOUTHERN CHILE

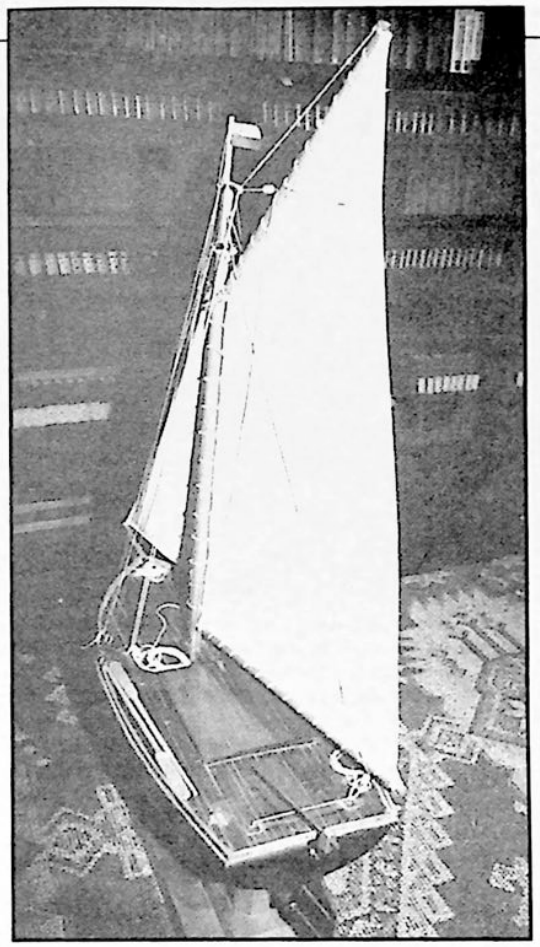
OUR BUS left the Pan-American Highway and wound its way down steep, twisty streets lined with picturesque houses and modern commerical buildings onto the busy waterfront boulevard of Puerto Montt in southern Chile. We were overwhelmed by the view before us of the great inland Gulf of Reloncavi, studded with islands and rimmed on the east by snow-covered volcanos and ridges of the Andean *cordilliera*.

As the driver slowly turned into the parking lot of the terminal, our attention focused on a gaff-rigged sloop running wing and wing into the harbor across the sparkling sea kicked up into whitecaps and spray by the stiff afternoon breeze. She steadily made toward us with just the occasional roll of her black hull and weather-stained sails to hint at the press of the wind carrying her along.

As we left the bus and picked up our luggage, our necks were still craned to watch the sloop rapidly approach the turn into the lee of Isla Tenglo. It was close enough by then to see the skipper and crew haul in the sheets as they rounded up and used the remaining puffs of wind to reach into the shelter of the cove at Angelmo. At that moment, we didn't know we were watching one of the last of the world's working sailing craft, the *lancha chilota* .

Later we learned, as has anybody who's ever been to Puerto Montt, that this famous vessel is the signature feature of the city and a very important part of the social and economic history of the region. As with sailing vessels everywhere, it was once about the only reliable form of transportation in the area.

The arrival of the internal combustion engine for marine power and the continual building of roads has diminished



■ **ABOVE: Forward looking view of the model. Note the sweep oars lying in the portside waterway. The tiller is mounted above the mainsheet horse; in practive it would run underneath it. ■ BELOW: Starboard side view with hatches open. The main hatch size on the actual vessels makes placement of radio control gear and batteries a natural on a model. The small hatch forward is where the charcoal brazier, anchor rode and personal gear are stored.**

its importance to general commerce. Luckily, it survives today because there still are isolated farm and fishing communities unreachable by truck and large marine transport vessels.

How long the *lanchas* will continue to sail carrying firewood, potatos, fruit, sheep and supplies is unknown, but probably not for long. We feel fortunate to have had the chance to learn about these rugged craft, meet their crews and even see one being built in the traditional way.

The roots of the reach back about 400 years when the first Spanish settlers, mainly from the northern provinces of Galicia, brought their sKills in building the sailing and rowing craft of the rugged coasts of northwestern Spain to southern Chile. Their traditions were blended with the designs of the native vessels, some large enough to be constructed of wide planks and requiring up to 10 paddlers to make way.

As the centuries passed, the sailing vessel we know today evolved. It was based on practical requirements: to operate with short crews; to be constructed of local woods with hand tools; to withstand the rigors of beaching on sand and shingle shores; and the capacity to haul profitable loads of cargo and yet stand up to the punishment of weather spawned in the ocean wilds of the Roaring Forties to the west.

The general type is very identifiable — all are about 10 meters (33') long, 4 meters (13') in breadth and 2 meters (6') in depth from deck to keel, with a full-gaffed main and single jib flown from a short bowsprit. An outboard rudder is controlled by a long tiller. With the right wind, a scavenger sail is rigged between boom and sheer rail.

Nevertheless, each boat is unique in character. The builders of the *lancha chilotas* have individual preferences on deadrise, sheerline, rudder and bowsprit shape, and rig proportions. Every shipwright or *maestro de la ribera* has a set of molds or *plantillas* that are the patterns, many passed down from father to son for generations, for each set of ribs and other curved member. When ready to build a new boat, the builder goes into the woods carrying his set of *plantillas* and searches for sturdy trunks and major tree limbs that naturally match the curves outlined by his patterns.

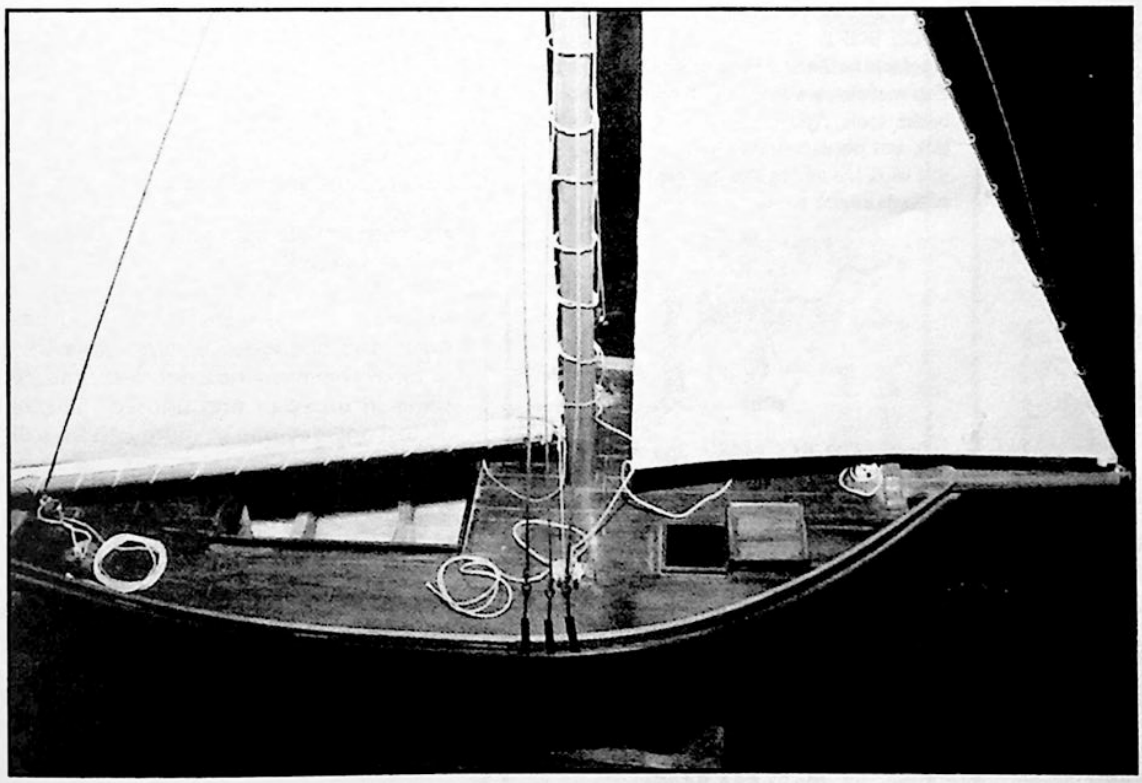
The final dimensions of keel, ribs, transom and stempiece may have to be adjusted and refined to make best use of the available stock in the nearby forest. After he has cut and hauled the chosen pieces to the building site or *astillero* —usually just a well-drained, firm place on the beach near his house — he begins to shape the parts into their final form with saws, adzes and other hand tools.

Once the hull is framed up fair and square, planks are sawed, shaped and then steamed in a wood-fired iron chest before being clamped and nailed home.

After some months, more or less depending on the severity of the weather and time spent in tending crops or fishing, the vessel is ready to be launched with the help of ox teams that drag the completed hull over the beach, carpeted with woodchips, to the mid-tide line. There, in a few hours, the rising waters will float her off — an occasion for a major celebration. Neighbors from all around will join together to prepare a big *curanto* or clambake on the beach. A priest will come to bless the ship and all will offer prayers for safe passages.

After the solemn ceremony, the party will begin and may last until dawn before all the food and wine have been consumed and every song has been sung.

For many years, scores of these sturdy craft plied



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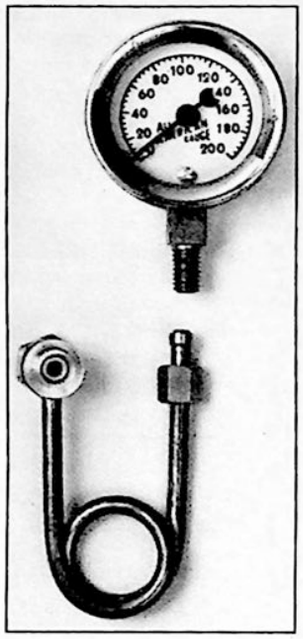

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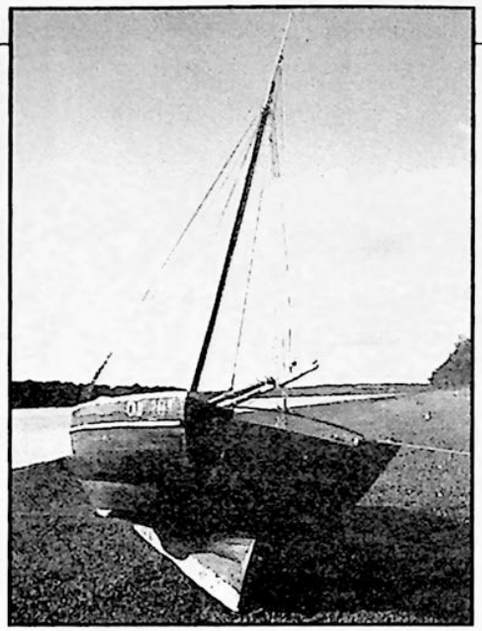
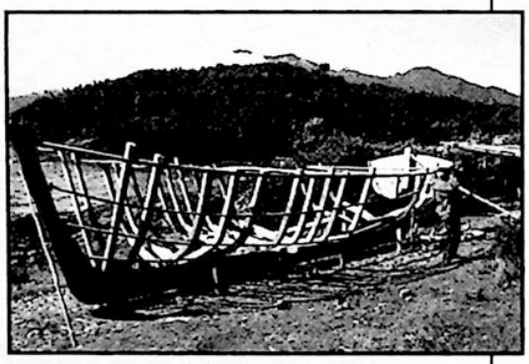


The lancha chilote, Nereide , on the beach near Calbuco. Note the rudder has been removed for restoring and the bracket. The Nereide for some years has been owned by the well-known Chilean author and socialogist, Pablo Huneeus Cox, who used her as a pleasure vessel and needed a motor to get home in time for work back in Santiago.Just recently, Pablo sold her to Captain Tom Smith, USN (ret.) who was the U.S. Naval Attache in Chile and now plans to spend part of his retirement years sailing his own lancha chilota.



Port bow view of the lancha chilota almost framed-up. The shed in the background is where tools are Kept and members are shaped. Note the small cross nailed to the top of the stem-piece, a chilotean tradition, similiar to nailing a tree to the roof gable of a house when it is put in place. The photo was taken on a Sunday afternoon, so the only activity is that of the photographer, me.

the winding channels, inter-island passages and open gulf waters. Now their numbers have dwindled to less than 30, some in disrepair and unused. Still, on almost any day one or more can be seen at work.

One sunny, crisp fall day we watched firewood being hauled out of the woods by oxcart to a seaside bluff near the remote village of Puelche, southeast of Puerto Montt. There, each piece was thrown down 200' or more to the tiny cove at the foot of the cliff. At high tide, the *lancha chilota Alondra* was beached, and as the tide receded, about four cords of the wood were loaded into her spa-

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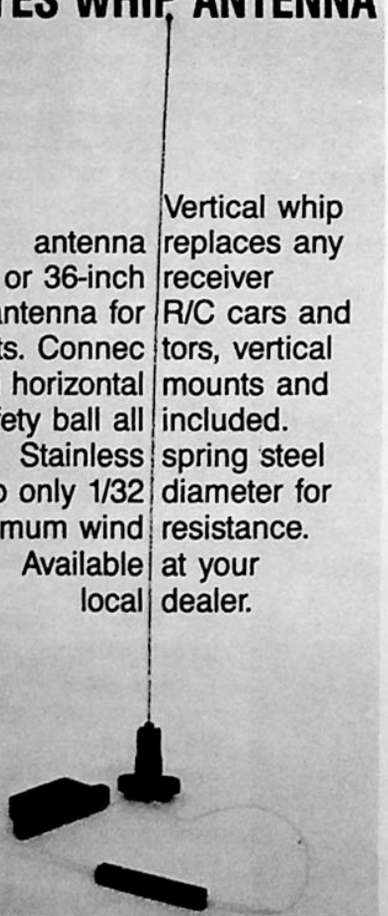

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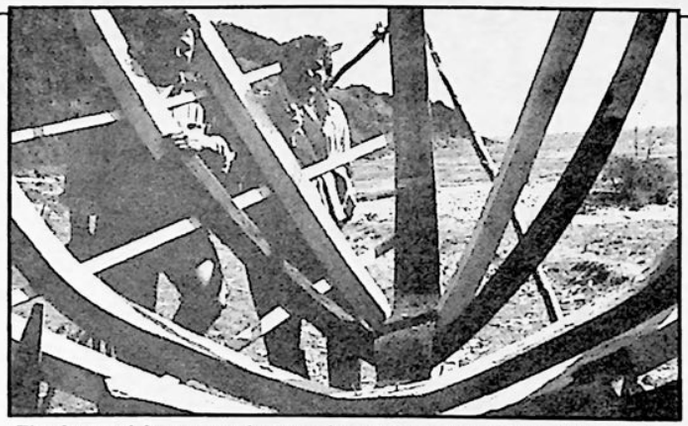

The forward frames and stem piece of the new lancha chilota being built now at Puelche by Don Pedro Manuel Diaz. He is building the craft for Sr. Adrian Curt Dannemann, pictured to the right. Although he plans to put her in working service, she will not toil, as he will truck her over the Andes to Bariloche, Argentina, the famous resort and ski center on the shores of large Lake Nauhel Haupi. There, after being fitted out with some modern conveniences and safety gear, he will use her for day tours on the lake. Pictured to the right: Sr. Adrian Curt Danneman, Jet Set Tours, S. A. Avenida Mitre 6, Entre Pi so, B4 00 Bariloche, Argentina Pictured to the left, his friend: Sr. Daniel Mandelli Chief Engineer, Argentine Merchant Marine Avenida Vice Almirante O'Connor 1017, 400 Bariloche

A down below view of the Nereide, showing her ribs, sheer clamp and deck beams. The bolts coming through the second deck beam are holding the cleat for the peak halyard and port side jib sheet. The Nereide is slightly smaller than the average lancha chilote, being only 9.2 meters long and proportionally less in beam and depth of hold. Still, it is easy to see how much cargo could be stowed in her during her working days.

with meat, seafood or cheese) and some potatos to be roasted on a brazier on deck (only possible to use if becalmed) provide nourishment for the 2-man crew. Shelter from the weather can only be found on top of the load of firewood in the hold. Dodgers, doghouses and cockpits are unknown on the working *lancha chilota!*

Depending on the weather, the voyage may take a day or more. A sack of bread and *empanadas* (turnovers stuffed

cious hold, unencumbered by auxilliary engine or comfortable quarters for the crew. As the tide returned, she floated off and was sailed away, deeply laden with her cargo of fuel for cooking and heating stoves in the city.

On another trip to Puerto Montt, this time in our own Vagabond 47 Ketch *Murielle*, we anchored in Canal Tenglo, a few miles southwest of town. Late one dark, still night, returning in our Zodiac from a cozy dinner aboard a neighboring cruiser, we noticed lights on the shore of Isla Tenglo being covered by some

continued on page 62

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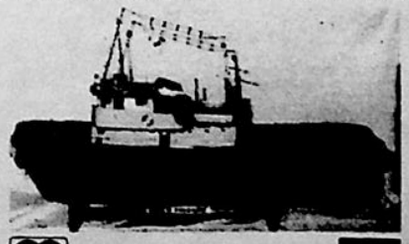

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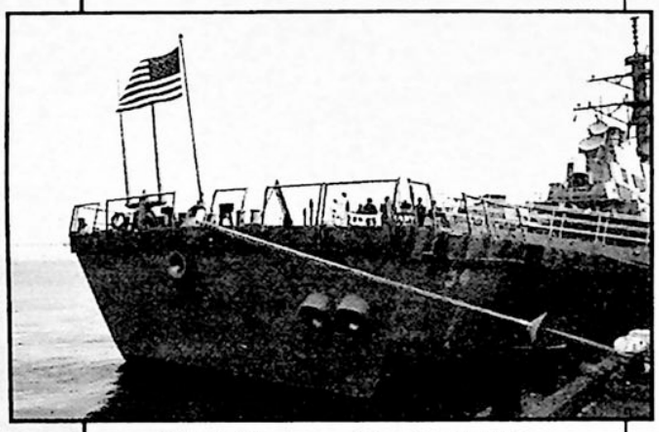
Welcome Aboard #1

USS CURTIS WILBUR (DDG 54)

A *Sea Photo* Presentation

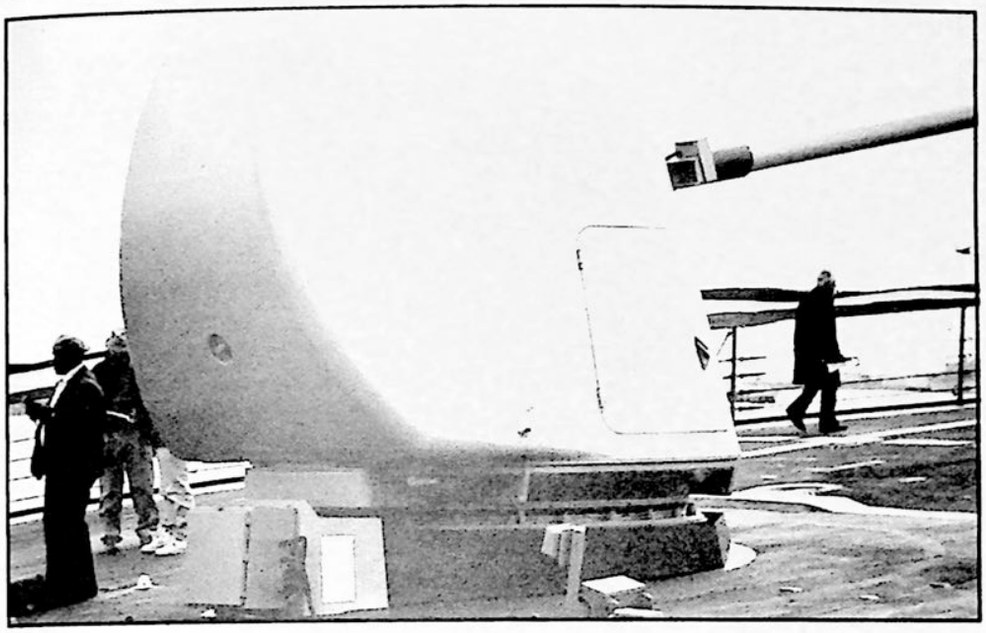


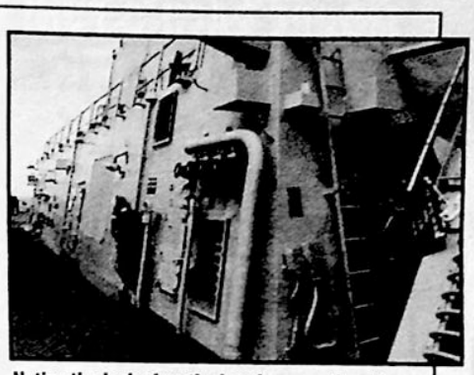
■ **RIGHT: The bow of the Curtis Wilbur photographed at San Francisco, California.**
■ **ABOVE: The stern of the Wilbur, illustrating the towed array opening (center) and the Nixie fairings (right). Earlier ships of the class have rectangular NIXIE fairings. NIXIE is a towed decoy used to confuse acoustic torpedoes.**

ONE OF THE newest additions to the fleet is the Aegis missile destroyer *Curtis Wilbur*. The fourth unit of the Arleigh Burke class, she was commissioned on March 19, 1994, at the Long Beach Naval Station, California.

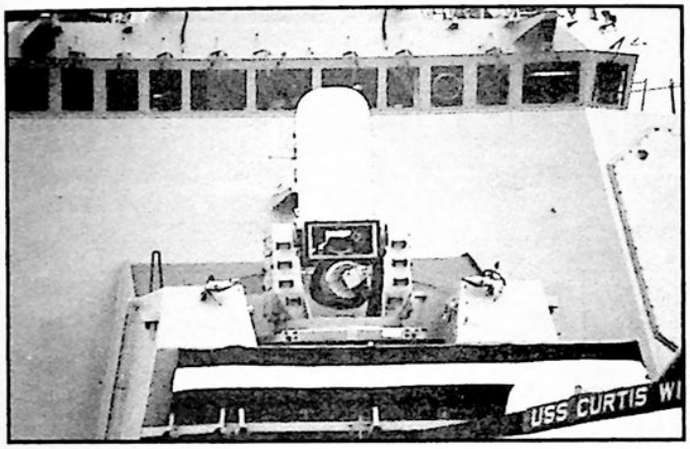
The Burke class destroyers are designed to fight in three dimensions: against subsurface, surface and airborne threats. They incorporate the Aegis weapons system, a highly advanced grouping of sensors (the SPYI radars, the distinctive hexagon panels on her superstructure), computer processing power, and the 41 VLS (Vertical Launch System) which allows her to quickly react to any threat. She also has the AN/SQS-53 hull-mounted sonar as well as the AN/SQR towed array sonar to deal with underwater combat.

Wilbur can fire three different types of missiles: the Tomahawk of Gulf War fame; the Harpoon (a shorter range surface attack weapon) and the Standard SM-2, primarily used for surface-to-air

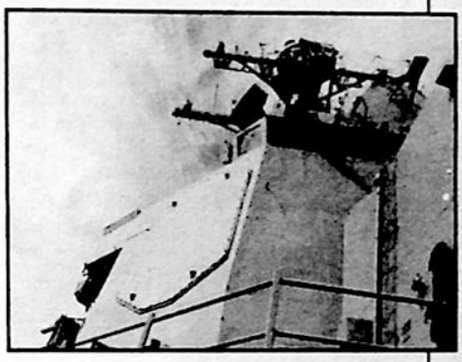




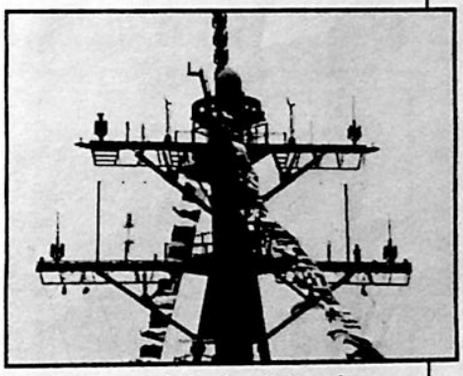
Notice the lack of vertical surfaces on the ship; this is to reduce radar signature.



■ ABOVE: A close-up view of the 5/54 gun mounted on the forward part of the ship, a full automatic weapon. ■ RIGHT: The forward CIWS is mounted just under the bridge.



Looking up at the bridge you can see the SPY1 radar array affixed to the superstructure.



The mast is also raked and angled to reduce radar profile.

SHIP SPECIFICATIONS:

Displacement: ..... 8,400 Tons.

Length: ..... 506 feet.

Beam: ..... 66 feet

Draft (Full load): ..... 32 feet

Propulsion: ..... 4 General Electric LM-2500 gas turbines, 100,00 hp; 30+ Knots

Crew: .....

Helicopters: ..... 2 SH60[illegible]

Missiles: ..... 90 cells for Sta[illegible] plus [illegible]

Guns: .....

Torpedos: .....

Current Station: .....

action. A 5"/54 gun mount and two Phalanx CIWS (Close In Weapon System) are supplemented as needed by smaller caliber guns as well as shoulder launched missiles, Finally, six torpedo tubes are carried as well.

These ships are built to go in harm's way; they are more survivable than previous classes, with extensive firefighting arrangements. They are all-steel construction, eliminating the serious fire hazard that aluminum creates. They have a limited Kevlar based protection system for vital areas, which are distributed though the ship for less vulnerability. They have extensive ECM (Electronic Counter Measures) capability, and are hardened against electromagnetic pulse damage.

The Burke class also are fast vessels,

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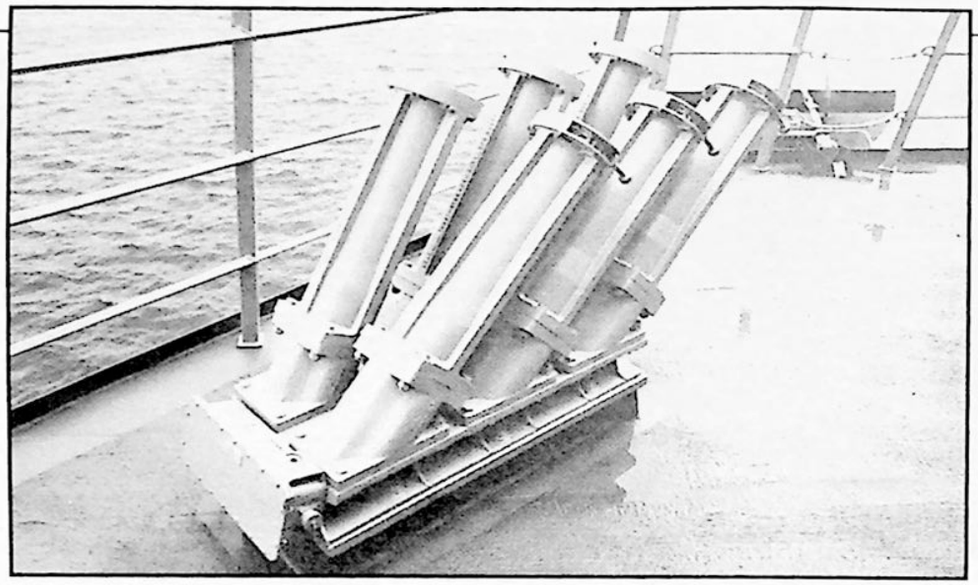
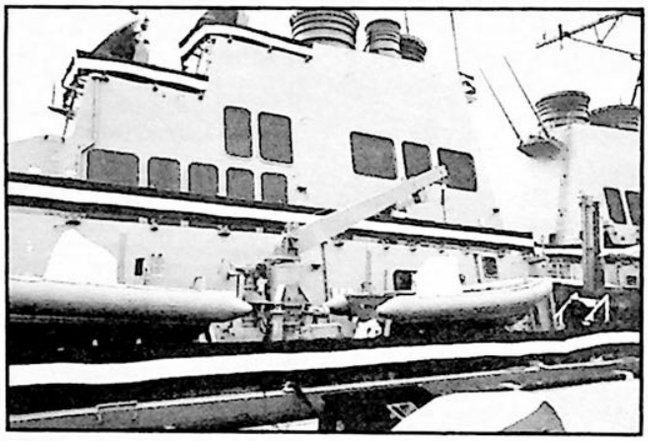
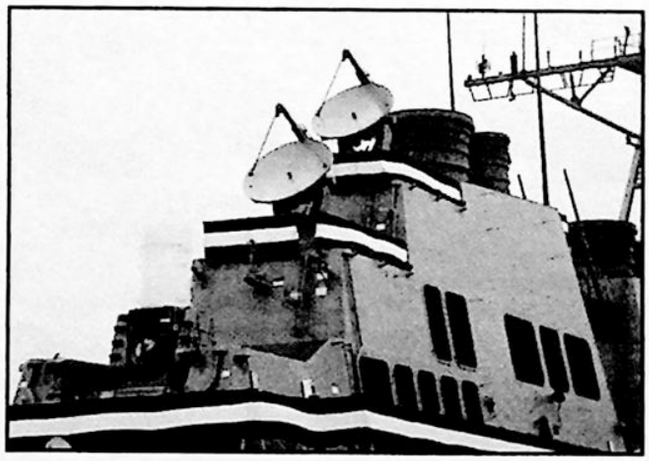


Decoy launchers mounted aft of the bridge; these are Mk 36 SRBOC (Super Rapid Blooming Offboard Chaff) that launch both foil and a flare to confuse incoming missiles.



The Aft superstructure, with the ship's boats in the foreground. The two boats are RIBs (Rigid Inflatable Boats) that have a rigid bottom and soft rubber sides.

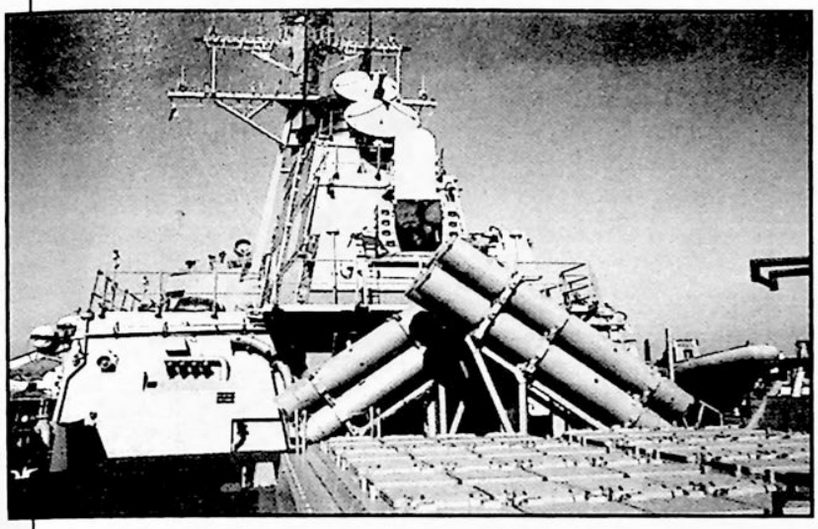


The aft structure, looking at the SPG-62 illumination radar for the Aegis system. These shoots a beam at the target that a missile can follow to impact. One additional SPG-62 is mounted above the bridge. To give some scale, the dish is 7 1/1 feet in diameter.

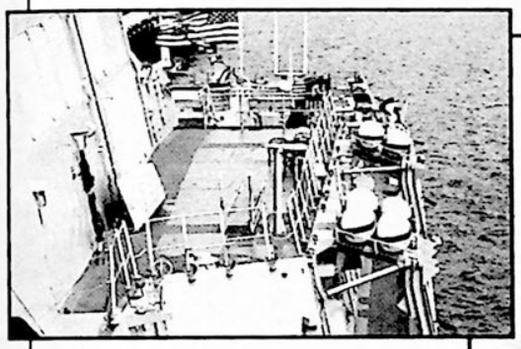
utilizing 4 GE gas turbines (similar to DC-10 engines) to develop 100,000 horsepower transferred through variable pitch propellers, 17 feet in diameter, for a speed of over 30 knots. They can accelerate to full ahead from a dead stop in 90 seconds, and can stop from that speed in less than 60 seconds. They are, in the words of one skipper, "a pleasure to drive."

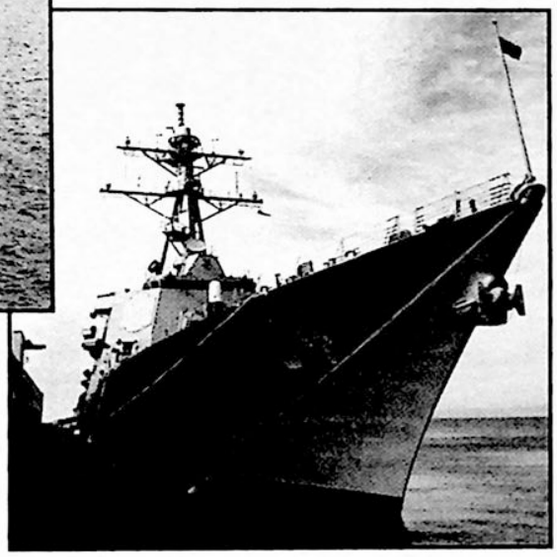
The ship as designed has a limited helicopter facility; she can operate and refuel, but has no hangar. This may be corrected in later versions of the class, but this is by no means assured due to the political climate. Almost 60 are planned, so it is very likely you will see at least limited changes to the design over the years.

The *Curtis Wilbur* is named for a former Secretary of the Navy under Calvin Coolidge who fought for a capable force in an era of shrinking budgets and limited public interest in the military. He encouraged the growth of naval aviation, as well as the development of cruisers for the Navy. The ship's motto is *Prudens Potens Patria*, Latin for "Judicious Power for Country."



The VLS missile launcher system (foreground), the Harpoon racks and the Phalanx mount are visible in this view of the John Paul Jones (DDG-53), one of the Wilbur's sister ships.





■ ABOVE: Looking down at the aft superstructure from the bridge. The light colored cylinders are encapsulated life rafts, designed to open automatically if needed.
■ RIGHT: This dramatic view of the Wilbur shows her raked bow to best advantage.

Modeling Information

As part of the Welcome Aboard series, we will try and give resources to help you in modeling each ship. Updated information is always welcome. And when you contact the suppliers, please mention that you saw this infor in *USB&SM*.

Plans: Plans for the Arleigh Burke (DDG 51) are available from the Floating Drydock (C/O General Delivery, Kregsville PA 18333).

Books: There are no books on the class, except for general references on the US Navy.

Magazine Articles: Useful articles appear in *Popular Mechanics* (December 1992), and the US Naval Institute *Proceedings* (October 1994).

Model Kits: No plastic or resin kits exist for this class as yet.

Large Scale Hulls or accessories: A 1/96 scale hull for this class is available from The Scale Shipyard (3727 166th Pl. S.W., Lynnwood WA 98037-7072). They also manufacture many fittings for this type of destroyer.

Ship Addresses: When writing to a Navy ship, it is a good idea to keep your letter short and to the point. Often they will send you a picture of the ship and a pamphlet of information. Sometimes you can purchase additional items from the ship's store. These are the available addresses for Burke class destroyers:

USS Arleigh Burke DDG 51, Public Affairs Officer, FPO AE09565-1269.
USS John Paul Jones DDG 53, Public Affairs Officer, FPO AP 96669-127.
USS John Barry DDG 52, Public Affairs Officer, FPO AE 09565-1270. •

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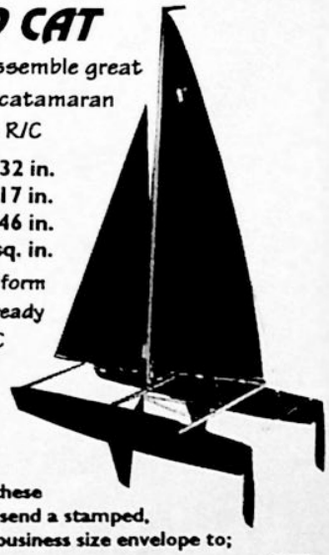

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ITBREAD RACER YAMAHA

BY W.H. GEBHART

Tamiya's Yamaha sailboat model on this page looks identical to full-size race yacht shown with new 100-foot mast in the photo above.

l In Kit
In The
Issue,
's Time
e Real
Baby!"

FOR A week I walked past it, going through the shipyard to the boat I was working on. It was so big that it only fit diagonally in the large staging area of the Newport Harbor Shipyard. It started as a limbess aluminum trunk, felled from some environmentalist's nightmare forest, about the breadth of a man's torso and nearly 100 feet long.

As the week progressed, it sprouted spreaders, four sets in all, and the accompanying rod rigging. Then it hit me: The upper set of spreaders were supported by rigging that described a elongated diamond, the distinctive mark of a Whitbread 60 mast! Could this possibly be the rig from one of the participants from the Whitbread Round the World Race? If it were, then the boat could not be far behind.

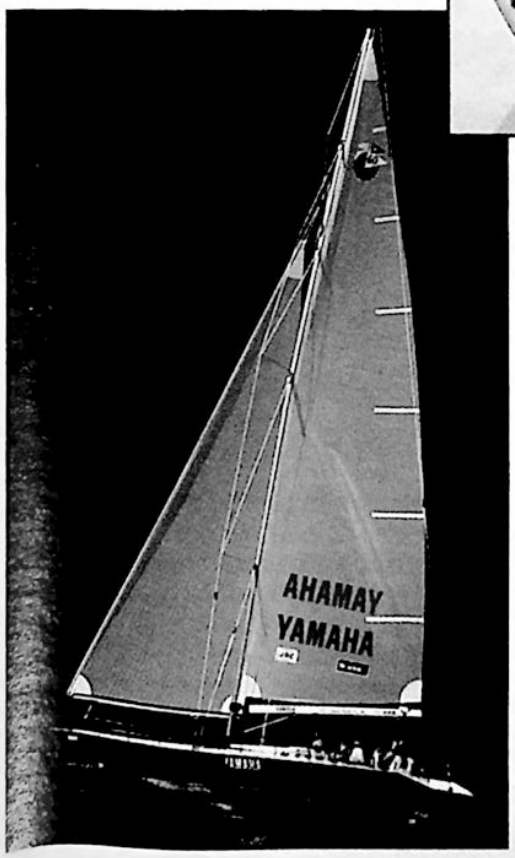
I recently spent three months following the race, mostly as research for a model review I was writing on Tamiya's scale model of one entrant, *Yamaha. (See boat test in Fall 1994 issue — Editor.)* By the end of the project, the whole notion of a race around the world following the track of the Clipper ships had captured my imagination.

I asked one of the yard workers about the mast, but when he responded with an epithet about its size and how much of a pain it was to work around it, I dropped the subject.

When I was next at the shipyard, I noticed that the mast was gone. Rounding the last row of buildings I was confronted with a scene that made me jump out of my skin with excitement: a crane is stepping the mast on the actual Yamaha, winner of the Whitbread Round the World Race!!

I grabbed my camera, loaded film and rammed home the wide angle lens, realizing that 10 minutes later and I would've missed the whole thing. The crew is in a dither to get the mast stepped and secured just enough to pull away from the work slip. Apparently water depth is a major concern. The Yamaha draws 14'. Later, as they were pulling away, the crew could see a trail of silt stirred up from the bottom by the Yamaha's keel.

While crew are plastic on Tamiya kit, positions are identical to what awaits crew of newly christened America's Challenge. More to come!



Dr. Neil Barth (above) checks a copy of USB&SM that features miniature version of his new acquisition.
■ LEFT: This is meat and drink for serious ocean racers.

I learned it was berthed next door to my main commercial account and its new owner is Dr. Neil Barth. He was present at the stepping but I missed him, so I tried the phone. After three unreturned calls over the next four days, he checked in. He invited me to go sailing on *Yamaha* that weekend.

I found that Dr. Barth is serious about ocean racing. "We flew to Ft. Lauderdale before the start of the final leg of the Whitbread and made arrangements with Ocean Ventures Management (owners of *Yamaha*) to purchase the vessel at the end of the race," he informed as we sailed. "After winning the Whitbread, it was shipped to Yamagouri, Japan, for a victory tour of the country. After that, it was put back on a freighter and shipped here to Newport Beach.

"Last summer we won the Kenwood Cup *(a series of endurance races around the Hawaiian Islands — Ed.)* with a boat I had designed by Alan Andrews and built by Westerly Marine in San Diego. I'm shipping *Excel Growler* to Key West next week for a Regatta."

Alan Andrews also designed *Persuasion* for Dr. Barth, a 52-footer that raced in the last running of the Transpac.

Ocean racing is not a pursuit for the faint of heart. Serious? Dr. Barth heads the first (and only) syndicate from the U.S. to announce their intentions to enter the 1997 Whitbread. He began planning it even before the end of the last race. Matter of fact, in Whitbread Round the World history, his is the first all American entry in the race. The name of the syndicate and their boat, once it's built? *America's Challenge*, naturally.

Right now the real challenge for Dr. Barth is in finding sponsorship. The current cost of a new boat alone is enormous, without considering costs of planning, setting up the worldwide network in all the host ports, training and supporting a crew for the nine months of the race, and other contingencies. .

As the first U.S. born and bred entry, it's hoped that *America's Challenge* will appeal to an American corporation looking not only for the obvious tie-in, but also for the enoumous exposure that such a prestigious worldwide event will bring them. •

4TH ANNUAL COMMODORES

BY JOHN S. GILL

FUN FLOAT

The Kay-D by Dave Kammerer is almost finished.

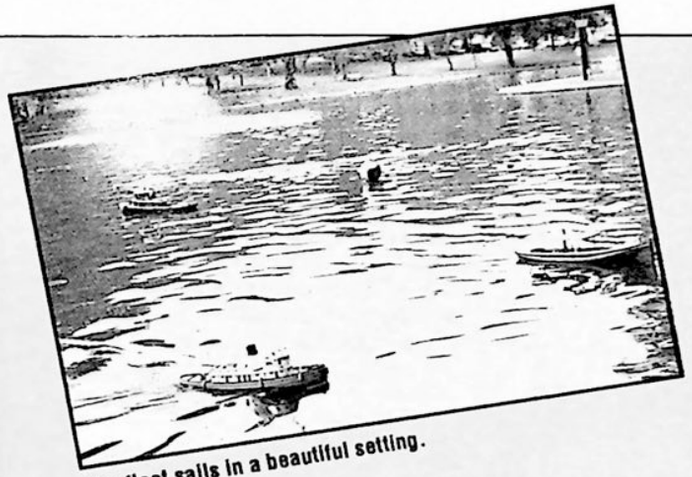
THE COMMODORE'S Summer Fun Float is becoming the most-popular event in the Northeast. This year over 200 models were running and on display at the day-long festival.

The Summer Fun Float brings together clubs and modelers from New Jersey, New York and Pennsylvania. In late fall, commodores and their assigned members meet to set a date and discuss the following year's event.

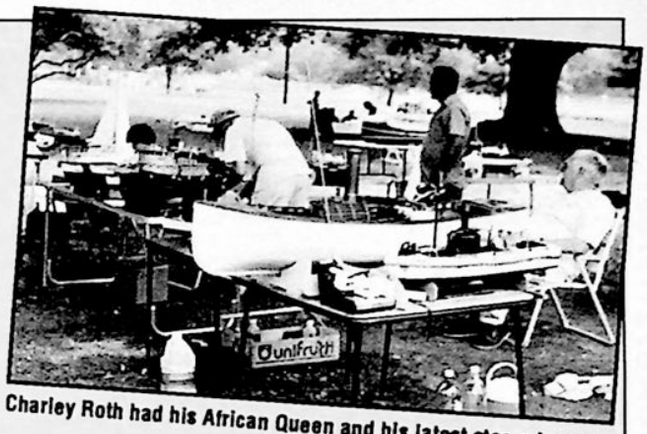
Participating from New Jersey are: South Orange Seaport Society (South Orange), Spring Lake Model Boaters (Spring Lake) and New Jersey Wave Busters, (Hopatcong). From Pennsylvania are Valley Forge Model Boaters (Valley Forge), Task Force 90 (South of York), and Task Force 100. Representing New York State is Empire State Model Mariners (Long Inland).

Each year the event is hosted by a different club. The date is a Saturday, usually in the last week of July to the first week of August. It's held at Modick Park in the supportive town of South Orange, New Jersey.

The Summer Fun Float is a non-com-

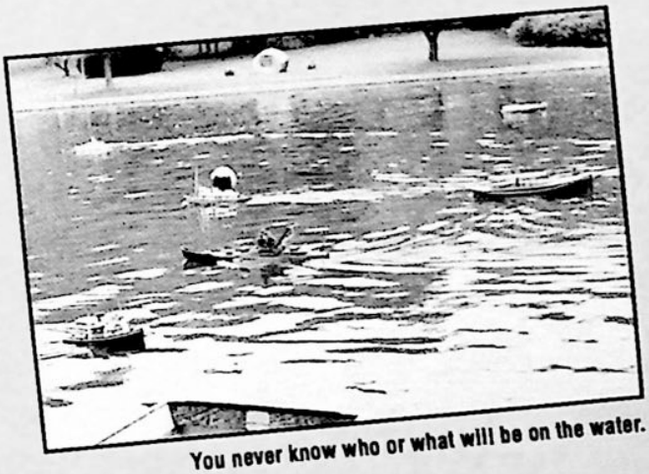


The fleet sails in a beautiful setting.



Charley Roth had his African Queen and his latest steam launch.

All types of boats were on hand from sail to military.



You never know who or what will be on the water.

Don McDonald enjoys the day with a nicely done tug.

Elliot Kaplan and Phil Daniels show off their models.

petitive event and open to all model boaters. It brings together people from all walks of life to share their modeling experience. In 1994, the Empire State Model Mariners were host and did a great job of controlling frequencies and making sure that the event ran smoothly.

Most of the boats are scale models with super details and working functions, such as fire monitors, cranes, anchors, lights and sound. But a few are flights of fancy, including a model of the Yamoto II from a cartoon series. Fast electric boats were well represented and the Empire club ran a couple of one design races, being a "run till you drop" race. Everyone had fun trying to guess which boat would finnish last. Running a fast electric race during a scale meet brings the level of excitement up, both for participants and spectators.

The steam contingent had a good following. Charles Roth had his *African Queen* with Hepburn and Bogey running smoothly with a full head of steam. The "quiet bunch" set sail under modest to very light wind conditions.

Everyone had a great time right to the end when Elliot Kaplan used a 29-year-old tug to push the recovery boat that was picking up the course markers.

Until next year, good boating! We hope to see you at the next Summer Fun Float!

(Editor's Note: For more information, contact John Gill 16 Roosevelt Trail, Hopatcong, NJ 07843.) •

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CHILE *continued from page 53*

moving form. We scooted over to see what it was and quickly made out a *lancha chilota*, laden almost to the gunwales with firewood, being rowed slowly along with the rising tide. The sails hung limp from gaff and forestay, providing ghostly shadows of the forms of the captain at the stern and the crew at the bow as they bent to their long sweep oars. We cut our engine and paddled along with them for a few minutes, chatting in the silence only broken by the gurgle of the water dripping from the oars. Bidding them a farewell and *buen viaje* we returned aboard *Murielle* to slip into our snug bunk, while our *chilote* friends continued rowing through the night to reach the shore at Angelmo before the tide turned to ebb.

We wanted to preserve the memories of our special encounters with these last remnants of the heritage of sail, not only in photos and words, but also in a model of the craft. Many are available for sale in the tourist shops in the area, but we could not find one finely built and to scale for some time.

Finally, at the University of Southern Chile in Valdivia, in the office of the late Dr. Jurgen Winter, we found an example of the type built by Luis Andrade of the port city of Calbuco, home of a number of the remaining sailing *lanchas*. Luis and his father took the lines off 4 of the craft and built a composite model at 1:20 scale.

We were so entranced with this work that we decided to put together a plank-on-frame model kit of the *lancha chilota* that can be displayed or adapted easily for radio-controlled sailing. It won't be the fastest ship on the pond, but it will certainly turn more heads than most. If you would like to receive more information and a specification sheet on the model kit, please write Sr. Fernando Becerra Weir, Casilla 1422, Valdivia, Chile. •

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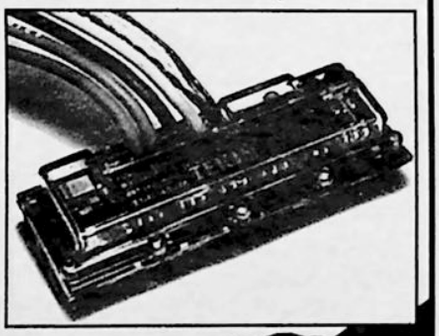

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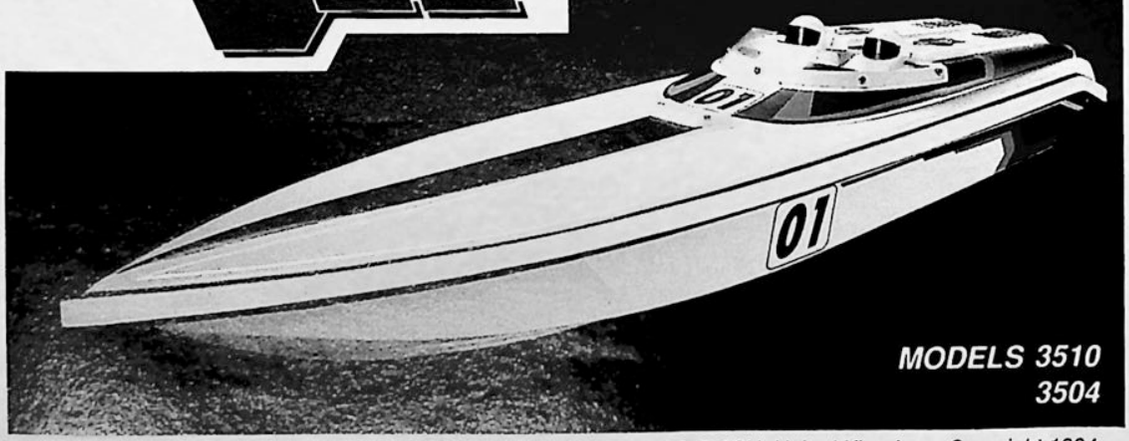

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